

APPENDIX 2

Meeting Agendas and Summaries

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Steering Committee Meetings Agendas and Summaries

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**Lower Fall Creek Watershed Management Plan
STEERING COMMITTEE MEETING**

1:30 pm Thursday, May 31, 2007

held at
Christopher B. Burke Engineering, Ltd.
115 W. Washington St., Ste. 1368 Indianapolis

317-266-8000

AGENDA

1. Welcome and Introductions
2. Review Planning Grant Schedule and Requirements
3. Benefits of Watershed Planning
4. Overview of Lower Fall Creek Watershed
5. Desired Project Outcomes
6. Identify Key Stakeholders in Watershed
7. Next Steps
8. Closing and Adjournment

Directions: The Christopher B. Burke Engineering, Ltd. (CBBEL) office is located in Suite 1368 of the South Tower of the National City Center Building/Hyatt Hotel (115 West Washington Street) downtown Indianapolis. Parking is available in the Circle City Center Parking Garage (2 entrances – Maryland St. and Illinois St.), Plaza Park Garage (2 entrances – Maryland St. and Capitol Ave.) and metered street parking (if you're lucky). If you park in either of the garages, go to the 3rd parking level and enter the National City Center Building via the pedestrian bridge over Maryland St. Take the first set of elevators (once inside the National City Center) to the 13th floor. The entrance to Suite 1368 is visible once you leave the elevator. This reads much more daunting than it actually is. If additional help is needed call Burke Engineering at 317-266-8000.

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Lower Fall Creek Watershed Management Plan
STEERING COMMITTEE MEETING

1:30 pm Thursday, May 31, 2007

held at

Christopher B. Burke Engineering, Ltd.
115 W. Washington St., Ste. 1368 Indianapolis

317-266-8000

MEETING SUMMARY

Steering Committee Members Present:

Chris Barnett, Near North Development Corporation
Crist Blassaras, Madison County SWCD
Victoria Cluck, Indianapolis DPW
Josh Goode, Watershed Resident
Tina Jones, Indy Parks
Lori Kaplan, City of Lawrence DPW
Ron Lauster, Marion County SWCD
Bob Masbaum, Indianapolis DPW
Donna Price, Indianapolis DMD
John South, Hamilton County SWCD

Others Present:

Paula Baldwin, Marion County SWCD
Bob Barr, IUPUI CEES
Lisa Bihl, Empower Results
Zach Bishton, CBBEL
Heather Buck, CBBEL
Jill Hoffman, UWRWA & Empower Results
Anna Jetmore-Vargas, Indy Parks
Sheila McKinley, CBBEL
Sky Shelle, IDEM
John Ulmer, Central Indiana Watersheds
Leanne Whitesell, IDEM

1. Welcome and Introductions

Paula Baldwin from the Marion County SWCD Board of Supervisors welcomed everyone to the meeting. Paula provided background on the form and function of SWCDs in Indiana and specifically Marion County. Paula provided an overview of the Districts desire to prepare a Watershed Management Plan (WMP) for the 4-county Lower Fall Creek Watershed and the IDEM 319 grant that is funding this planning effort. Everyone followed by introducing themselves, who they were representing, and their interest in the Lower Fall Creek Watershed.

2. Review Planning Grant Schedule and Requirements

Sheila McKinley from CBBEL and Project Manager for the Lower Fall Creek WMP reviewed the WMP Checklist and Tasks that must be completed in order to fulfill the IDEM WMP grant requirements. The Tasks include: A) Developing a WMP; B) Conduct Water Quality Monitoring; C) Develop an Education and Outreach Program; and D) Implement a BMP Demonstration Project. Sheila reviewed the 30-month project Timeline and noted that the start of the project was delayed from December 2006 to May 2007 due to the time it took the SWCD to hire and negotiate the subcontract with CBBEL. Fortunately IDEM has been flexible with the lack of progress made in the first and second quarter. However, Sheila added that CBBEL staff will work diligently to get the project on schedule as quickly as possible.

3. Benefits of Watershed Planning

Sheila McKinley from CBBEL presented watershed planning as a means to 1) maintain, protect, and restore natural resources; 2) support environmental protection, quality of life, and economic development; and 3) establish partnerships between government, businesses, and citizens with a common goal. Comprehensive watershed planning efforts can have significant environmental, community, financial, and administrative benefits. Sheila reminded the Steering Committee that the impacts of clean water are far reaching and necessary for drinking water, manufacturing processes, agriculture production, economic development, recreation and tourism, and quality of life and that is precisely why such a diverse group of local leaders and decision-makers has been asked to serve on the Lower Fall Creek WMP Steering Committee.

4. Overview of Lower Fall Creek Watershed

Zach Bishton from CBBEL presented an overview of the current land use and known water quality impairments in the Lower Fall Creek Watershed. More than 50% of the Lower Fall Creek Watershed is developed for residential, commercial, industrial, and institutional type uses. Zach noted that the majority of the developed portion of the Lower Fall Creek Watershed is in Marion and Hamilton Counties. Zach presented data from IDEM's 2002 Fall Creek TMDL Report, IDEM's Fixed Station Data along Fall Creek, the Marion County Health Department from Fall Creek, Indianapolis DPW Combined Sewer Overflow (CSO) Long Term Control Plan, and Indiana University's 2003 Study of Mud Creek/Sand Creek. All studies indicate elevated nutrient concentrations, elevated bacteria concentrations, and impaired biological communities. Zach added that the suspected sources listed in these reports include failing septic systems, illicit connections, wildlife, stormwater, CSOs, and land application of pesticides. Zach reminded the Steering Committee that this was just an initial overview of the known water quality impairments and that an important part of developing the WMP is to identify known and probable causes and sources of water quality impairments in the Lower Fall Creek Watershed.

Heather Buck from CBEL presented information on the ethnic, language, and economic diversity in the Lower Fall Creek. According to the US Census, the Hispanic population increased 300% in both Marion and Hamilton County between 1990 and 2000. During this same time, the Hispanic population decreased in Madison County. The African-American population is very small in Hancock, Madison, and Hamilton Counties but accounts for more than 20% of the population in Marion County. Similarly, languages other than English spoken at home were also greatest in Marion County. Median household income and owner occupied housing is considerably higher in Hamilton, Hancock, and Madison County than in Marion County. Heather reminded the Steering Committee that reaching the very diverse Stakeholders/Public in the Lower Fall Creek Watershed will require creative partnering with existing neighborhood associations, churches, and community-based organizations.

5. Desired Project Outcomes

Sheila McKinley opened the floor to the Steering Committee to 1) discuss what current programs, policies, and projects in Marion, Hamilton, Hancock, and Madison Counties would benefit the development of the Lower Fall Creek WMP and 2) to understand what each Steering Committee member would like to see come out of this planning effort.

Tina Jones with Indy Parks discussed the historic value of Fall Creek from Emerson Avenue to the White River, and that the promotion of the historic and cultural value of the watershed could go along way towards creating long-term public interest. Tina talked about the Indy Parks Land Stewardship program, public land holdings, and the greenway along Fall Creek. Tina discussed potential partnering opportunities associated with the annual Future Farmers of America (FFA) National Convention. The FFA convention has a National Service Day. She also suggested coordinating with FFA to conduct some restoration projects in the watershed as a part of their National Day of Service.

Bob Massbaum with Indianapolis DPW discussed the importance of working with the City in order to ensure that the watershed project is well coordinated with the City's CSO Long Term Control Plan implementation efforts. Bob stressed the importance that both groups understand how these two projects merge together.

Victoria Cluck with Indy DPW added that the City's CSO Long Term Control Plan is not limited in scope to CSO's and that it focuses on broader environmental efforts. She also mentioned that coordination with Keep Indianapolis Beautiful would be beneficial, and that illegal dumping issues are a problem in the watershed.

Lori Kaplan with Lawrence DPW discussed the new Fort Harrison Urban Village Development and suggested that there might be opportunities to incorporate some innovative stormwater BMPs into the project.

Donna Price with Indy DMD discussed her interest in developing incentive programs to encourage developers to implement innovative stormwater BMPs. Donna also discussed a need to heavily involve local schools and Girl Scout and Boy Scout troops. Donna suggested coordinating with these groups to conduct volunteer sampling and storm drain marking projects.

Crist Blassaras with the Madison County SWCD suggested promoting and soliciting participation in an Adopt-A-River program along Fall Creek. Crist also suggest coordinating with the Court system to utilize non-violent offenders for stream and open space clean-up efforts. Crist also suggested partnering with local Universities to conduct research studies in the watershed, as well as to promote local stewardship efforts.

Jill Hoffman with Empower Results discussed her organizations role with the Upper White River Watershed Alliance (UWRWA), and the UWRWA's support for the Lower Fall Creek Watershed project. Jill also discussed her hope that this project will result in tangible water quality improvement projects.

Chris Barnett with Near North Development Corporation discussed his hope that in the future Fall Creek and water quality will be viewed as valuable amenities to individual and businesses within the watershed. Chris also discussed that restoration and trail expansion projects would be of benefit both in terms of economic development and water quality. Chris is also the Vice Chair of the Marion County Wellfield Education Corporation (MCWEC), and mentioned that it will be important to understand the interplay between surface water and groundwater in the watershed.

Bob Barr with the Center for Earth and Environmental Science (CEES) at IUPUI said that they are very interested in this project and that the Fall Creek is very much in-line with the types of projects CEES has been involved with in the past. Bob said that naturalization projects along Fall Creek would be beneficial. Bob also stressed the fact that he would like to see this project go beyond the typical 319 project, and result in something that is tangible and around for the long-term.

John South with the Hamilton County SWCD mentioned that it would be good to have a representative from the Town of Fishers and the Hamilton County Surveyor's Office involved in the project. John also discussed the Hamilton County SWCD's Backyard Conservation Program, which is targeting landowners in the Fishers/Geist areas of Hamilton County.

6. Identify Key Stakeholders

Sheila McKinley from CBBEL noted that in order to be truly successful and develop a WMP that local community leaders, decision-makers, and the public will embrace and want to implement, there is a large number of people and organizations that need to be included in the development of the Lower Fall Creek WMP. Sheila suggested forming 3 Working Committees that focus specifically on 1) Education & Outreach, 2) Water Quality, and 3) Land Use & Economic Development. Participation in the Working Committees would be open to those with expertise and interest in one or more of the 3 topics. The intent would be to thoroughly discuss each topic, identify critical areas in the Lower Fall Creek Watershed, and recommend programs, policies, and projects to improve water quality.

Tina Jones from Indy Parks suggested focusing the Working Committees on the Urban, Suburban, and Rural land use and related issues. This idea generated much discussion among the Steering Committee members. Sheila offered to work with the SWCD and look into this idea further.

7. Next Steps

Ron Lauster from the Marion County SWCD commented that the planning process is just getting started and that there are plans for a Lower Fall Creek Watershed webpage complete with maps, meeting notes, meeting schedule, and a “blog” for discussion purposes. Ron noted that the Stakeholder/Public Meeting has been tentatively scheduled for the mid-July, followed by Working Committee meetings in mid-August, and a Steering Committee meeting in late August. Ron asked for suggestion for meeting locations that were somewhat centralized in the watershed. Several suggestions were mentioned including the Neighborhood Resource Center at the State Fair Grounds, the Julia Carson Center on Fall Creek Parkway, Fort Benjamin Harrison Park, and Lawrence Community Building. To lessen confusion, Ron would like all meetings to be held in the same location and will do some research to determine what facility would be best.

8. Closing and Adjournment

Paula Baldwin enthusiastically thanked everyone for their participation in a very productive first Steering Committee meeting of the Lower Fall Creek WMP, wished everyone well and looked forward to seeing them again in August.

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Lower Fall Creek Watershed Management Plan
STEERING COMMITTEE MEETING

3:00 pm Wednesday, August 22, 2007
Lawrence Government Center
9001 East 59th Street

AGENDA

1. Welcome and Introductions
2. Overview of Public Meeting
3. Issues Discussed in the Working Groups and Next Steps
4. Identify Topics for Steering Committee Meetings
5. Closing and Adjournment

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**Lower Fall Creek Watershed Management Plan
STEERING COMMITTEE MEETING**

3:00 pm Wednesday, August 22, 2007
Lawrence Government Center
9001 East 59th Street

Meeting Summary

Steering Committee Members Present:

Ron Lauster, Marion County SWCD
Chris Barnett, Near North Development Corporation
Kelly Wood, City of Indianapolis Neighborhood Liaison
Crist Blassaras, Madison County SWCD
Gwen White, IDNR
Lori Kaplan, City of Lawrence DPW
Angie Dye, Veolia Water Company

Others Present:

Lisa Bihl, Empower Results
Heather Buck, CBBEL
Sheila McKinley, CBBEL
Sky Schelle, IDEM

1. Welcome and Introductions

Ron Lauster, Marion SWCD, welcomed everyone to the Steering Committee meeting while a sign in sheet was distributed. Those in attendance introduced themselves and indicated the agency or office which they represented. A Steering Committee contact list was distributed and those in attendance were asked for their preference on the type and amount of contact information they would like included on the Lower Fall Creek Watershed website. Ron also provided attendees with several informational pieces regarding the watershed activities, upcoming events, and newsletters.

2. Overview of Public Meeting

An overview of the Public Meeting held in the Lawrence Government Building on July 24 was provided by CBBEL staff. Bulleted highlights were also provided in a packet distributed. This information can be found in the rear of this meeting summary.

3. Issues Discussed in the Working Groups and Next Steps

An overview of the three Working Group meetings (Water Quality – 8/07/07, Land Use/Economic Development – 8/14/07, and Education & Outreach 8/16/07) was provided by CBBEL staff. Bulleted highlights were also provided in a packet distributed. This information can be found in the rear of this meeting summary. Several of the Steering Committee members informed the group of additional informational outlets that could be utilized throughout the planning effort and their willingness to assist in making those contacts.

4. Identify Topics for Steering Committee Meetings

Much time was spent discussing the topics of the upcoming quarterly Steering Committee meetings. Sky Schelle with IDEM noted that the intent of the planning process was to produce a document through the leadership of local figures that can take the plan and move into the implementation phase. It is important that this plan not be placed on a shelf.

Crist Blassaras noted that while in the planning phase, the Steering Committee and Working Groups should use the knowledge available such as IUPUI/CEES. Several other groups have completed monitoring, planning, and have implemented projects that can and should be used to further this planning effort.

Chris Barnett of the Near North Development Corporation noted that local ordinances and regulations should be reviewed to determine what impacts they have on water quality and quantity, noting that several ordinances may be in place that aren't typically thought of as having an effect on water (i.e. sidewalk ordinances). Chris also mentioned the need to align both the ground and surface water policies for the protection of the entire watershed.

Throughout the discussion several key topics such as changes in land use, drinking water, wellhead protection efforts, water quantity, stream management, Geist Reservoir, and stakeholder involvement were mentioned. Steering Committee members expressed the need to continue to gather information from stakeholders regarding watershed issues, provide that information to the Working Groups, and have the Working Groups formulate recommendations based on that information.

The group came to a consensus on the topics for the next several Steering Committee meetings: January 2008 – Land Use change in the Lower Fall Creek Watershed; March 2008 – Stream morphology and water quantity issues; and May 2008 – Drinking water quality and policies.

5. Closing and Adjournment

Ron Lauster provided the closing comments by reiterating the need to sign in and thanking everyone for their participation. Ron also mentioned that he would be meeting with a soils class from IUPUI and would like suggestions on possible student projects that can be completed within the watershed for the benefit of the students as well as the planning effort. The next Steering Committee meeting is scheduled for January 8, 2008 at the Lawrence Government Center to begin at 3:00 pm.

Lower Fall Creek WMP – Public Meeting

STEERING COMMITTEE UPDATE

8/22/07

BACKGROUND:

- 25 interested stakeholders met on 7/24/07
- Ron Lauster discussed the 319 grant
- CBBEL staff presented anticipated outcomes, grant requirements, and water quality data
- Brochures were provided

DECISIONS & DISCUSSION:

- Issues in the watershed.
 - Excessive sediment and debris build up: Emerson/Fall Creek Bridge
 - Standing water after small rain events: Millersville Rd/Mallard Lake
 - Conservation Reserve Enhancement Program (CREP) successes in Upper Fall Creek Watershed
 - Hoosier Heartland Resource Conservation & Development (HH RC&D) program success throughout Central Indiana
 - Health hazard warning signs below 46th St
 - Invasive species management
 - Concerns over management of Geist Spillway
 - Windridge Condominiums - severe erosion, main access closed
- Existing water quality data also presented.

NEXT STEPS:

- Those present were encouraged to participate in Working Groups
- Follow ups to those stakeholders wishing to include watershed updates in individual newsletters, websites, etc.
- Information discussed during the public meeting will be utilized during the upcoming Working Group meetings.
- Next Public Meeting will be in the 8th quarter of the grant (Sept – Nov 2008)

Lower Fall Creek WMP – Water Quality Working Group

STEERING COMMITTEE UPDATE

8/22/07

BACKGROUND:

- 16 interested participants met on 8/7/07
- Outlined role of Working Group:
 - Identify water resource problems
 - Assist in the analysis and synthesis of existing water quality data
 - Establish pollutant load reduction targets
 - Identify critical areas within the watershed
 - Propose best management practices to improve water quality

DECISIONS & DISCUSSION

- Discussed water quality monitoring requirements of the grant: collection of no less than eight (8) water chemistry samples from no less than ten (10) sites in the watershed.
 - existing water chemistry data seems sufficient
- Discussed collecting macroinvertebrate samples, habitat assessments, and geomorphic measurements from 10 sites in the watershed
- Future meeting topics:
 - Streambank erosion and effects on watershed
 - Rule 5 enforcement
 - Improved coordination and management of data collection
 - Geomorphic changes in Fall Creek
 - Identify Critical Areas and BMPs

NEXT STEPS:

- Water monitoring scope change
- Develop Quality Assurance Protection Plan (QAPP)
- Next meeting 3pm 11/13/07 at the Lawrence Government Center.

Lower Fall Creek WMP – Land Use & Economic Development Working Group

STEERING COMMITTEE UPDATE

8/22/07

BACKGROUND:

- 13 local land use planners/economic development staff and interested public met on 8/14/07
- Outlined role of Working Group:
 - Define land use categories (affecting water quality)
 - Identify where and how development/redevelopment is occurring
 - Identify Critical Areas and best management practices (BMPs)
 - Discuss standards for development/redevelopment
 - Determine if standards are good/bad for water quality and/or economic development

DECISIONS & DISCUSSION:

- Presented existing land use data 1992 satellite Multi-Resolution Land Characteristic data and State Land Use Codes – both dismissed
- Group developed land use categories to better reflect impact on water quality
 - Agriculture (cropland or pasture)
 - Woodland/Park/Preserves/Wetlands/Floodplains/Cemeteries
 - Golf Courses
 - Commercial/Industrial/Apartment Complexes (non-pollutant generating, non-NPDES)
 - Commercial/Industrial (pollutant generator, NPDES permit, CRTK, CAFO, auto salvage, landfill, private WWTP)
 - Active Rule 5 (land cleared for construction)
- Future meeting topics:
 - Determine rate of growth and land uses in transition
 - Identify Critical Areas and BMPs to improve water quality
 - Review Development Standards and impact on water quality and economic development

NEXT STEPS:

- Create land use map
- Review historic aerials to document rate of growth
- Document land uses in transition (economic development/Rule 5)
- Representation from all County and Community planners and economic development departments
- Next meeting 9 am 11/13/07 at Lawrence Government Center

Lower Fall Creek WMP – Education & Outreach Working Group

STEERING COMMITTEE UPDATE

8/22/07

BACKGROUND:

- 5 interested participants met on 8/16/07
- Outlined role of Working Group:
 - Provide educational opportunities to the stakeholders
 - Utilize existing sources to inform watershed stakeholders
 - Receive recommendations from other Working Groups

DECISIONS & DISCUSSION:

- Discussed existing education and outreach outlets
 - Marion County Alliance of Neighborhood Associations
 - Hamilton, Hancock, Madison, and Marion SWCD contacts
 - Alternative media contacts: 107.1 Spanish radio; Amos Brown; etc.
 - Recreation and Service Clubs: Boy/Girl Scouts, Canoe Club, Fishing Club
 - Eagle Creek and Upper White River Watershed groups
 - Utility bill inserts
 - Dick Wolfsie, WISH TV 8 (or other local news programming)
 - Locations for information distribution: Fall Creek Bait & Tackle, golf courses, Indy Parks
 - Area High School Science Teachers, Clubs, FFA, etc.
- Need to engage elected officials (Fed, State, City, and County levels)

NEXT STEPS:

- Review school district ethnicities
- Map legislative boundaries and identify representatives
- Receive guidance from other Working Groups
- Discuss workshop topics
- Next meeting 3 pm 12-13-07 at the Lawrence Government Center.



Lower Fall Creek Watershed Management Plan
STEERING COMMITTEE MEETING

3:00 pm Tuesday, February 12th 2008
Lawrence Government Center
9001 East 59th Street

AGENDA

1. Welcome and Introductions
2. Land Use & Land Use Change in the Lower Fall Creek Watershed
3. Review and Prioritize Critical Areas Identified by Work Groups
4. Identify Management Measures *(if time permits)*
5. Closing and Adjournment

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**Lower Fall Creek Watershed Management Plan
STEERING COMMITTEE MEETING**

3:00 pm Tuesday, February 12, 2007
Lawrence Government Center
9001 East 59th Street

MEETING SUMMARY

Steering Committee Members Present:

Chris Barnett, Near North Development Corporation
Crist Blassaras, Madison County SWCD
Victoria Cluck, Indianapolis DPW
Josh Goode, IACT
Tina Jones, Indy Parks
Joe Ketterman (for Pam Thevenow) Marion County Health Department
Ron Lauster, Marion County SWCD
David Parnell, Lawrence City Council
Donna Price, Indianapolis DMD
Kent Ward, Hamilton County Surveyor's Office
Gwen White, IDNR

Others Present:

Heather Buck, CBBEL
Nancy Darr, Landowner Hancock County
Bonnie Elfritz, IDEM – OWQ
Stephen Hoback, Landowner Hancock County
Sheila McKinley, CBBEL
Sky Schelle, IDEM - OWQ

1. Welcome and Introductions

Ron Lauster welcomed everyone to the Steering Committee meeting while a sign in sheet was distributed. Those in attendance introduced themselves and indicated the agency, office, or organization which they represented.

2. Land Use and Land Use Change in the Lower Fall Creek Watershed

Before the presentation, Sheila McKinley reminded the Steering Committee because of the structure of this planning effort – with the Work Groups working through the details of the WMP – this allowed the Steering Committee time to focus on some of the bigger philosophical or policy issues in the Lower Fall Creek Watershed. Three topics were

identified. These include: Land Use & Land Use Change (2/12/08), Surface & Ground Water Quality (5/13/08), and Flooding & Flooding Impacts (8/12/08).

Using 1990, 2006, and 2010 projected census data as well as 1950 and 2003 aerial photography, Sheila illustrated the dramatic growth and development that has occurred in the Lower Fall Creek Watershed in the last 50 years. The modified Land Use map prepared by the Land Use & Economic Development Work Group was presented to the Steering Committee. Rather than using standard Land Use Code categories, the Work Group identified land use classifications based on known risk to water quality. These include: 1) Agriculture, 2) low/medium-density Residential, 3) Open Space, 4) Golf Courses, 5) Commercial and Industrial (with NPDES permits), high-density Residential, Commercial, Industrial, and Educational; and active Rule 5 sites) The Land Use & Economic Development Work Group also prepared a map that illustrated Land Use Influences including development at Exit 10 (Noblesville & Fishers) and Exit 5 (Fishers) along I-69; the influence of I-69, I-74, Mt. Comfort Airport, and proposed Airport south of Lapel in Madison County; continued growth in Fishers, Noblesville, and McCordsville; and the BioCrossroads infill development (in wellfield) at the confluence of Fall Creek and White River.

Sheila presented research on land use practices as sources of sediment (tillage practices, construction practices, streambank erosion, and stormwater runoff), nutrients (fertilizer application and failing septic systems), and pathogens (failing septic systems, combined sewer overflows, illicit stormwater connections, wildlife, stormwater runoff, livestock/manure management). The research also shows the direct relationship of imperviousness to water quality. The overall imperviousness in the Lower Fall Creek is 25% which, according to the research, limits the ability to control for specific nutrients and toxic pollutants.

To further understand the relationship of land use to water quality in the Lower Fall Creek Watershed, the Land Use & Economic Development Work Group suggested utilizing the Land Use Central Indiana (LUCI) Model and the Long-Term Hydrologic Impact Analysis (L-THIA) Model. Three growth scenarios were used in LUCI – Current Growth Model, Build-Out Growth Model, and Conservative Growth Model. The percentage of land use from each of these models was inputted into L-THIA to determine the impact on water quality. The results were not surprising but do reaffirm the direct relationship between land use and water quality. The Conservative Growth Model showed a decrease in nutrients, sediments, and imperviousness. While the Build-Out Growth Model showed a decrease in nutrients and sediments (less agricultural land) there was an increase in pathogens, imperviousness, and stormwater runoff.

Sheila posed the question to the Steering Committee that if we agree that land use, imperviousness, and water quality are connected then rather than shouldn't we do a better job in our land use planning efforts? The EPA recently released a draft document called "Land Use Planning as the First BMP: Linking Stormwater to Land Use". Key concepts from this article are: location, density, and design of development dictated by Comprehensive Plans and Development Ordinances; missed opportunity to integrate stormwater management into planning; and mismatch between site and watershed planning efforts. An example from this document was presented to the Steering Committee. It used watershed characteristics (flooding, drinking water source, impaired stream, etc.) to determine the most appropriate planning tool. Sheila challenged the Steering Committee to think about how the existing land use plans and development

ordinances in the Lower Fall Creek Watershed could better integrate water quality (and quantity) concerns. As well as how the land use planners in each community could work better with the stormwater managers to develop watershed solutions to improve water quality. Members of the Steering Committee engaged in a fruitful discussion about the opportunities and challenges of this somewhat common sense approach to improve water quality.

3. Review and Prioritize Critical Areas Identified by Work Groups

IDEM defines Critical Areas as “where the sources are causing the greatest damage and where treatment measures have the greatest effect”. Heather Buck noted that the Water Quality Work Group, Land Use & Economic Development Work Group, and Education Committee selected Critical Areas based on water quality and land use data that was presented to them. Heather presented the Critical Areas by pollutant – Sediment, Nutrient, and Pathogens.

Sediment Critical Areas include: streambank erosion at Windridge Condominiums, lack of Erosion and Sediment Control (ESC) Ordinance in the City of Lawrence, sediment loading in Indian Lake, and development at I-69 Exit 10 in Noblesville and Fishers. Nutrient Critical Areas include: 8 golf courses (Brendonwood County Club, Fort Golf Course, Gray Eagle Golf Club & Academy, Hawthorn Golf & County Club, Hillcrest Country Club, Indian Lake Country Club, Ironwood Golf Club, and Old Oakland Golf Course), 4 residential lakes over 50 acres (Lake Stonebridge, Lake Kesslerwood, Lake Maxinhall, and Indian Lake), and 6 wellfield protection areas. Pathogen Critical Areas include: Indiana State Fair Grounds, BioCrossroads Medical Research Facility, 6 wellfield protection areas, 11 non-sewered areas (4 High Priority according to the Septic Tank Elimination Program (STEP) 42nd & Sherman, 42nd & Millersville, 46th & Emerson, and 82nd & Redbud), and the neighborhood at 42nd and College Street (downstream from the State Fair Grounds) where kids play in Fall Creek.

Heather asked the Steering Committee to prioritize the Critical Areas within each of these pollutant groups. Members of the Steering Committee acknowledge the efforts of the Work Groups to filter through all of the water quality and land use data in the Lower Fall Creek to identify these Critical Areas and concluded that each one was equally important. Several Committee members offered that IDEM did not require them to prioritize then they would prefer not to. Sky Shelley confirmed that IDEM does not require Critical Areas to be prioritized.

4. Identify Management Measures *(if time permits)*

Insufficient time was available (as suspected) to discuss Management Measures. This item will be discussed at the 5/13/08 Steering Committee meeting.

5. Closing and Adjournment

Ron distributed an updated Project Timeline and pointed out the 3 workshops (Pond Maintenance, Backyard Conservation, and Regulated Drain vs. Natural Streams) being planned in partnership with the Education & Outreach Work Group. Ron encouraged everyone to periodically check the Lower Fall Creek WMP (www.lowerfallcreek.org) for updates and thanked everyone for their participation.

The next Steering Committee meeting is scheduled for Tuesday, May 13, 2008 at the Lawrence Government Center to begin at 3:00 pm.



Lower Fall Creek Watershed Management Plan
STEERING COMMITTEE MEETING

3:00 pm Tuesday, May 13th 2008
Lawrence Government Center
9001 East 59th Street

AGENDA

1. Welcome and Introductions
2. Project Updates
3. Identify Projects, Resources and Timeline for Implementation
4. Relationship of Surface & Ground Water Quality and why it matters in the Lower Fall Creek Watershed
5. Closing and Adjournment

Next Meeting: 3 pm Tuesday, August 12th focusing on Flooding & Flooding Impacts in the Lower Fall Creek Watershed

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**Lower Fall Creek Watershed Management Plan
STEERING COMMITTEE MEETING**

3:00 pm Tuesday, May 13th 2008
Lawrence Government Center
9001 East 59th Street

MEETING SUMMARY

Steering Committee Members Present:

Chris Barnett, Near North Development Corporation
Josh Goode, IACT
Ron Lauster, Marion County SWCD
Kent Ward, Hamilton County Surveyor's Office
Gwen White, IDNR
Jerry Wilkey, City of Lawrence DPW

Others Present:

Heather Buck, CBBEL
Nancy Darr, Landowner Hancock County
Stephen Hoback, Landowner Hancock County
Sheila McKinley, CBBEL
Sky Schelle, IDEM - OWQ

1. Welcome and Introductions

Ron Lauster welcomed everyone to the Steering Committee meeting while a sign in sheet was distributed. Those in attendance introduced themselves and indicated the agency, office, or organization which they represented.

2. Project Updates

Ron and Sheila discussed the updates needed to the Lower Fall Creek Watershed website (www.lowerfallcreek.org) and that these updates will be completed soon so that all information will be current.

Sheila indicated that the draft Watershed Management Plan (WMP) sections 1-5 will be submitted to IDEM later in May and will also be made available via the website for Steering Committee and Work Group members to review and comment.

Sheila indicated that Greg Bright has completed the first macro-invertebrate sampling in April. Results from that sampling event should be provided in the next few weeks. A second sampling event will be scheduled in October, 2008.

Ron reported that the proposed historic/native planting along Fall Creek as a BMP demonstration project will not be able to be completed this year. However, other options are being considered at Lake Maxinhall and Indian Lake as these communities have expressed an interest in partnering to install a BMP demonstration. Heather also provided information on the BMP report produced by CBBEL as a part of the 319 grant requirements. This report provides detailed information related to the Critical Areas identified by the Steering Committee and work groups where a structural BMP demonstration can be implemented. Golf Courses, residential lakes greater than 50 acres, and school properties were mapped, contact information was provided for each property or community, and a list of potential BMPS was provided within the report. This report will be made available on the Lower Fall Creek website.

Ron updated the Steering Committee on the upcoming workshops: Shoreline Stewards (June 12 and August 21, 2008) will be held at the Garrison at Fort Benjamin Harrison State Park and is designed to assist local lake communities and streambank property owners in developing a management plan to reduce pollutant loadings to the watershed. Local experts will be on hand at the second session to provide detailed information to attendees regarding the main issues of that community; Backyard Conservation (Fall) will soon be developed but is intended to highlight conservation measures such as rain gardens and porous pavement, that can be implemented on existing residential properties; and the Regulated Drain vs. Natural Waterway workshop (Winter) will be held to inform landowners what they can and cannot do along regulated drains and how that impacts their participation in Federal USDA incentive programs such as the Conservation Reserve Program to install filter strips along streambanks.

3. Identify Projects, Resources and Timeline for Implementation

Sheila presented the proposed management measures and invited the Steering Committee members to identify potentially responsible partners and the resources needed for implementation of those measures. After this portion was complete, Steering Committee members were asked to prioritize the proposed management measures with “dot” stickers representing <5 years, 5-10 years, and >25 years as an anticipated timeline for completion of the measure. The number of “votes” each management measure received is noted within the brackets in the “Timeline for Implementation” column of the table while the timeframe receiving the most votes is indicated in bold text. The outcomes of this exercise are attached to the rear of this summary.

4. Relationship of Surface & Ground Water Quality and why it matters in the Lower Fall Creek Watershed

Heather provided a brief power point highlighting the connectivity of surface water and groundwater and how that plays an important role in developing and implementing a WMP. The need for better information (or more information *sharing*) related to groundwater resources and the hydrology of the watershed was discussed. It is important to know the hydrology along Fall Creek (whether it is a gaining stream or a losing stream) to plan and implement stormwater conservation measures that filter pollutants while not impacting the groundwater. Much of the Lower Fall Creek Watershed (approximately 25%) lies within Wellfield Protection Areas (WFPA). Chris

Barnett also provided insight to the impacts to groundwater as he serves on the Board for the Marion County Wellfield Education Corporation.

5. Closing and Adjournment

The next Steering Committee meeting will be held Tuesday, August 12th at 3:00 pm and will focus on Flooding & Flooding Impacts in the Lower Fall Creek Watershed.

Lower Fall Creek Watershed Plan

DEVELOPMENT OF MANAGEMENT MEASURES

Note: Steering Committee votes for implementation timelines are indicated in **Bold text**, while the total votes for each timeframe is indicated within the brackets.

Suggested Management Measures to address...

SEDIMENT LOADS

Management Measure	Responsible / Partnering Entity	Resources Needed	Timeline for Implementation
Create a Highly Erodible Land (HEL) overlay zone for planning & zoning purposes.	Planning & Zoning Departments <i>All</i> Soil & Water Conservation Districts (SWCD) <i>All</i>	Lower Fall Creek support & education Soil maps Develop language to create overlay	5 year [1] 10 year [1] 25 year [3]
Stabilize streambanks along Fall Creek with native vegetation and removal of invasives (target adjacent publicly owned open spaces and golf courses).	Parks Departments <i>All</i> Golf courses Keep Indianapolis Beautiful (KIB) SWCDs <i>Hamilton County</i> <i>Marion County</i>	Labor Permits Project design Plant material Education on invasive plants	5 year [3] 10 year [0] 25 year [1]
Reduce soil erosion and stormwater runoff from construction sites.	MS4 Communities <i>All</i> Indiana Department of Environmental Management (IDEM)	Education Funding Staff	5 year [1] 10 year [3] 25 year [1]

Management Measure	Responsible / Partnering Entity	Resources Needed	Timeline for Implementation
	SWCDs <i>All</i>		
	Developers and Contractors		
Educate contractors and developers regarding Rule 5 & Rule 13 requirements, inspections, and enforcement.	IDEM Hoosier Heartland Resource, Conservation, & Development (HHRCD) MS4 Communities <i>All</i> SWCDs <i>All</i> Building Association of Greater Indianapolis (BAGI)	Field Day associated with annual workshop Funding	5 year [5] 10 year [0] 25 year [0]
Establish a 3-tier (flag/sign) colored system signage program to identify excellent/good/poor active construction sites or developers that are in compliance with IDEM's Rule 5 program.	Planning & Zoning Departments <i>All</i> SWCDs <i>All</i> Lower Fall Creek Watershed Alliance (LFCWA)	Planning, Zoning Inspectors Establish criteria by which to rate construction sites or developers	5 year [1] 10 year [1] 25 year [2]
Develop a Lake Management Plan for Indian Lake.	Indian Lake Homeowners Association (HOA) Marion County SWCD LFCWA		5 year [2] 10 year [2] 25 year [1]
Stabilize shorelines of Indian Lake with native vegetation to reduce increased sedimentation.			

Management Measure	Responsible / Partnering Entity	Resources Needed	Timeline for Implementation
<i>*This was discussed by the Steering Committee and was agreed that it is a component of the management measure above and was subsequently deleted.</i>			

NUTRIENTS LOADS

Management Measure	Responsible / Partnering Entity	Resources Needed	Timeline for Implementation
Evaluate Development Ordinances based on the Center for Watershed Protection's "Code & Ordinance Worksheet Tool".	Indianapolis Department of Public Works (DPW) Planning & Zoning Departments All Upper White River Watershed Alliance (UWRWA)	Copies of the worksheet Planning Graduate Student(s) Ball State IUPUI	5 year [2] 10 year [1] 25 year [1]
Integrate Low Impact Development (LID) practices into new or re-development projects.	Developers Planning & Zoning Departments All SWCDs All HHRCD Marion County Wellfield Education Corporation (MCWEC) UWRWA Water utilities	Ordinance language developed Guidance documents for practices Incentives for integration	5 year [1] 10 year [0] 25 year [3]

Management Measure	Responsible / Partnering Entity	Resources Needed	Timeline for Implementation
<p>Reduce application of phosphorus containing fertilizers on Indian Lake golf course, Brendonwood Golf Course, Hillcrest Country Club, and Ironwood Golf Club</p> <p><i>*This management measure was discussed by the Steering Committee and was agreed that it is a component of the conservation programs listed 2 rows below. It was subsequently removed.</i></p>			
<p>Reduce application of phosphorus containing fertilizers on residential properties on Lake Maxinhall, Indian Lake, Kesslerwood Lake, and Stonebridge Lake</p> <p><i>*This management measure was discussed by the Steering Committee and was agreed that it is a component of the conservation programs listed below. It was subsequently removed.</i></p>			
<p>Encourage golf courses and residential properties along Fall Creek or lakes larger than 50 acres to participate in the Audubon Cooperative Sanctuary Program, Groundwater Guardian Green Sites, National Wildlife Federation, or a similar conservation program.</p>	<p>Golf Course managers</p> <p>MCWEC</p> <p>Office of the Indiana State Chemist (OISC)</p>	<p>Speakers bureau</p> <p>Conservation program requirements</p> <p>Education on conservation programs</p>	<p>5 year [1]</p> <p>10 year [5]</p> <p>25 year [3]</p>
<p>Adopt a WFPA Protection Overlay Ordinance for the Madison County WFPA.</p>	<p>Madison County Commissioners</p> <p>Madison County Health Department</p>	<p>Delineation or study of wellfield area</p>	<p>5 year [1]</p> <p>10 year [1]</p>

Management Measure	Responsible / Partnering Entity	Resources Needed	Timeline for Implementation
	Madison County Plan Commission Madison County Surveyor	Adoption of protection ordinance	25 year [0]

PATHOGEN LOADS

Management Measure	Responsible / Partnering Entity	Resources Needed	Timeline for Implementation
Establish or enhance shoreline and streambank riparian buffers to reduce potential increases in bacteriological impacts from wildlife and domestic pets throughout the Lower Fall Creek Watershed.	Health Departments <i>All</i> Planning & Zoning Departments <i>All</i>	Amendment to ordinance (>12 inches needs mowed) Education on buffers Signage for buffers	5 year [5] 10 year [0] 25 year [1]
Partner with the Indiana State Fair Board to reduce <i>E. coli</i> loadings to Fall Creek.	4-H / FFA Fair Board Fair Commission Marion County Health Department Mapleton - Fall Creek Neighborhood Association	Education Possible outdoor classroom	5 year [1] 10 year [1] 25 year [0]
Support the Septic Tank Elimination Program (STEP) especially within the WFPAs and floodplains of the Lower Fall Creek Watershed.	Marion County Health Department Indianapolis DPW Marion County Health & Hospital Corporation	Long-Term Control Plan implementation	5 year [2] 10 year [2] 25 year [2]

EDUCATION & OUTREACH

Management Measure	Responsible / Partnering Entity	Resources Needed	Timeline for Implementation
Host an annual "Watershed Awareness" or "Celebrate Fall Creek" event (stream clean-up, water quality monitoring, educational workshops, safety, health and wellness).	LFCWA	Possible display at Earth Day celebrations	5 year [0]
	Natural Resources Education Council		10 year [0]
	Indy Parks	Possible addition to the Pathway to Water Quality at the Indiana State Fairgrounds	25 year [5]
	UWRWA		
	Health Departments <i>All</i>		
Develop future education & outreach programs based on results of the Social Indicators Survey.	Fort Benjamin Harrison State Park		
	LFCWA	Survey materials	5 year [1]
	Purdue University	Survey results	10 year [3]
Create education demonstration project(s) to illustrate good urban redevelopment practices and good stormwater management in critical watershed areas.			25 year [0]
	MS4 Communities <i>All</i>	Grants	5 year [3]
	Planning & Zoning Departments <i>All</i>	Technical assistance for project design	10 year [2]
	HOAs		25 year [0]
	Community Development Corporations <i>All</i>	Maintenance funding	



Lower Fall Creek Watershed Management Plan
STEERING COMMITTEE MEETING

3:00 pm Tuesday, August 12th 2008
Lawrence Government Center
9001 East 59th Street

AGENDA

1. Welcome and Introductions
2. Project Updates
 - i. Watershed Management Plan
 - ii. BMP Demonstration Projects
 - iii. Workshops
 - iv. Social Indicator Survey
 - v. Implementation Grant
3. Flooding & Flooding Impacts in the Lower Fall Creek Watershed
4. Closing and Adjournment

Next Meeting: 3 pm Tuesday, November 18th

[8-12-08 minutes]



Lower Fall Creek Watershed Management Plan
STEERING COMMITTEE MEETING

2:30 pm Thursday, January 29th 2009
Lawrence Government Center
9001 East 59th Street

AGENDA

1. Welcome and Introductions
2. Project Updates
 - i. Watershed Management Plan
 - ii. BMP Demonstration Projects
 - iii. Workshop
 - iv. Social Indicator Survey
 - v. Implementation Grant
3. Closing and Adjournment

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**Lower Fall Creek Watershed Management Plan
STEERING COMMITTEE MEETING**

2:30 pm Thursday, January 29th 2009
Lawrence Government Center
9001 East 59th Street

MEETING SUMMARY

Steering Committee Members Present:

Chris Barnett, Near North Development Corporation
John Hazlett, Office of Sustainability
Tina Jones, Indy Parks
Joe Kettermann, Marion County Health Department
Ron Lauster, Marion County SWCD
John South, Hamilton County SWCD
Paul Whitmore, Veolia Water

Others Present:

Heather Buck, CBBEL

1. Welcome and Introductions

Ron Lauster welcomed everyone to the Steering Committee meeting while a sign in sheet, recent editions of the Marion SWCD newsletter, and project summary information was distributed. Those in attendance introduced themselves and indicated the agency, office, or organization which they represented.

2. Project Updates

i. Watershed Management Plan

Heather indicated that a full draft of the Lower Fall Creek WMP was provided to IDEM at the end of December and that comments from IDEM reviewers are expected in early February. Ron provided copies of the WMP to those interested and reminded people that the draft is located on the Lower Fall Creek website (www.lowerfallcreek.org). A brief summary of the public meeting held on January 15, 2009 was also given. During this time, Heather also provided maps indicating the locations of the macroinvertebrate sampling sites. These maps were referenced while the October 2008 event findings and the overall observations and recommendations provided from Commonwealth Biomonitoring were discussed.

ii. BMP Demonstration Projects

Ron provided an update regarding the BMP demonstration projects as a part of this planning effort. He and other Marion SWCD staff have met with members of the Indiana State Fair Board and are developing plans to install 2 rain barrels and rain gardens near the greenhouse on the Indiana State Fairgrounds. Ron also mentioned the intent to include pervious concrete or pavers in the pathway leading to the greenhouse. Ron also discussed the rain garden to be located at the Mapleton Fall Creek Community Development office. The rain garden design and planting plan will need to be developed so that planting can occur in early spring.

iii. Workshop

Ron discussed the Backyard Conservation workshop held at the Broadway United Methodist Church on November 12, 2008. During this workshop over 25 participants learned the benefits of rain barrels, how to construct a rain barrel, as well as how to attract wildlife to their backyards. The Mapleton Fall Creek Community Development Office helped to plan this event.

Heather discussed the upcoming workshop, Regulated Drains vs. Non-Regulated Drains that is planned for March of this year. This workshop will be developed to provide landowners in the Lower Fall Creek Watershed with information on how to determine if their land is along a regulated drain, what that means for tree planting and streambank stabilization projects, permitting requirements for in-stream work, and potential funding sources available to them for conservation practices implemented on their land.

iv. Social Indicator Survey

Heather informed the group that the draft report from Social Indicator survey project has been received from Purdue University. A very low response rate of 27% was achieved so Purdue University plans to complete small, neighborhood-based focus groups to get a better sense of the awareness, attitudes, and practices related to water quality in the watershed. A few of the factors were discussed in more detail; such as where respondents had heard about water quality, zip codes with higher response rates, and where people turn to get reliable information regarding water quality. Information obtained from this survey, as well as information from the focus groups will be useful to the Lower Fall Creek Watershed and partnering agencies and offices during future education and outreach efforts.

v. Implementation Grant

Ron reminded the group that an application for IDEM 319 Implementation funds was developed and submitted. Ron has not yet heard of the success of that application. Proposed projects in the application, as well as measures detailed in the WMP were highlighted as Ron and Heather discussed the possibility of individual offices taking the lead on those projects should the implementation grant not be awarded. Several Steering Committee members expressed the need to track the locations of practices implemented through the planning grant, the possible implementation grant, as well as those practices completed by individual offices. This will enable the group and the watershed to better capture the benefit of these practices and potentially relate the practices to improved water quality within the watershed.

3. Closing and Adjournment

Ron and Heather thanked everyone for their attendance and efforts throughout the planning period, reminded them to look at the website for updates, and again encouraged them to review the draft WMP. It was noted that this is the last Steering Committee meeting to be held through this grant but that later meetings may be scheduled as needed to discuss implementation projects, partnering agency and office project updates, and other future opportunities.

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Public Meetings Agendas and Summaries

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Marion County Soil and Water Conservation District
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www.marionswcd.org

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SUPERVISORS**

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Paula Baldwin
Marvin Brethauer
J. Dennis Slaughter
Alan Retherford

**Lower Fall Creek Watershed Management Plan
Public Meeting #1
July 24, 2007 6:30 pm
Lawrence Government Center**

Agenda

**ASSOCIATE
SUPERVISORS**

Frederick Bein
Mark Brehob
Todd Cavender
Robert Eddleman
Greg Gerke
Joshua Goode
Robert Kleinops
Mike Massonne
Scott Schutte
Carroll White

1. Welcome
2. Overview of Grant Program
3. Discussion of Watershed Issues
4. Work Groups to be Established
 - Water Quality
 - Land Use/Economic Development
 - Education
5. Opportunities for Collaboration with Existing Efforts
6. Closing Remarks

**SUPERVISORS
EMERITUS**

Pete Baldwin
John Kitley
Stanley Smith

**DISTRICT
STAFF**

Ronald Lauster
Marilyn Hughes
Glenn Lange
Julie Farr

**DISTRICT STAFF-
CONTRACTUAL**

John Ulmer
Sheila McKinley

**USDA-NRCS
STAFF**

Henry Wallis

www.lowerfallcreek.org

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Lower Fall Creek Watershed Management Plan

Public Meeting #1

July 24, 2007 6:30 pm

Lawrence Government Center

Meeting Summary

1. Welcome

Ron Lauster, Director of the Marion County SWCD welcomed those in attendance and informed everyone of the agendas, brochures, and contact information located in the rear of the meeting room. Mr. Lauster provided background information regarding the grant awarded to the Marion County SWCD to complete the Lower Fall Creek Watershed Management Plan (WMP) utilizing a grass roots effort with support from the 4 Counties within the watershed.

2. Overview of Grant Program

Sheila McKinley with Christopher B. Burke Engineering, Ltd. (CBBEL) described the need to develop a WMP, the Steering Committee established for the Lower Fall Creek WMP project, and the anticipated outcomes of the process. Questions from the audience regarding the driving force behind the project were answered by Mr. Lauster and Sky Schelle, Watershed Manager at the Indiana Department of Environmental Management (IDEM).

3. Discussion of Watershed Issues

Heather Buck, CBBEL, facilitated an opening discussion with those in attendance regarding the current status of the entire watershed. Comments from the audience were recorded, discussed in detail, and will be provided to the Steering Committee for further comment and discussion.

- Watershed residents provided details of the excessive sediment and debris build up at the Emerson / Fall Creek bridge.
- Watershed residents provided details regarding Millersville Road at Mallard Lake/Devon Creek and the small rain event that resulted in over 9 feet of water (Sept. 2003) affecting the neighborhood and Millersville Road. Sedimentation of this area has also been identified as a potential cause for increased flooding.
- Crist Blassaras provide positive comments regarding the success of the Conservation Reserve Enhancement Program (CREP) in Madison County. This USDA program provides landowners with monetary incentives to install Best Management Practices (BMPs) to reduce non-point source pollution. Over 500 acres of trees and 25,000 feet of filter strips have been installed in the Upper Fall Creek watershed which drains to Geist Reservoir, eventually draining into the Lower Fall Creek watershed.

- The Hoosier Heartland Resource, Conservation, & Development (RC&D) programs were discussed as possible benefits to the watershed as well as an opportunity for collaboration on projects and outreach efforts.
- Signs warning residents against contact with the water below 46th street were discussed and questioned as to why these signs are there as well as questions related to the plans to remedy the situation and make the water safer.
- Invasive species were discussed as an obstacle for people to interact with Fall Creek as well as a detriment to the riparian corridors, wildlife, and flora of the watershed.
- A lengthy discussion occurred regarding the management of Geist spillway. Watershed residents discussed concerns over increased debris, large volumes of water overtopping the spillway, which authority oversees the management of the release, and the resulting downstream flooding.
- Several residents of Windridge Condominiums were present to discuss their concerns and needs regarding the severe erosion occurring along Fall Creek. This community has had to replace nearly 400 feet of water lines, access has been cutoff to neighboring communities as an entrance has been closed due to safety concerns, and an estimated 100 feet of streambank was lost in March of 2007 due to flooding.
- [Elaine ??] discussed the need to look into the effects of upstream urbanization and the amount of impervious surfaces along Geist Reservoir as a contributor to the increased volume of water being released from the spillway and affecting the downstream portions of the watershed.

4. Work Groups to be Established

A handout was provided to those in attendance summarizing the work groups (Water Quality, Land Use/Economic Development, and Outreach and Education) to be established. Also included were meeting dates and locations for the initial meetings for each of the work groups. Stakeholders are encouraged to participate in those work groups providing local insight, background expertise, and/or interest.

5. Opportunities for Collaboration with Existing Efforts

Heather Buck discussed the need for partnering with existing outreach and communication efforts. Existing newsletters, websites, homeowners associations, events, etc. will be helpful in getting the information related to the Lower Fall Creek WMP to numerous watershed residents and stakeholders. Many attendees provided contact information and mentioned the ability to include updates in neighborhood newsletters and websites.

6. Closing Remarks

Ron Lauster provided the closing remarks reminding everyone of the sign in sheet, informational materials available in the rear of the room, the upcoming work group meetings, and the need for local participation in preparing a valuable WMP.



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**Lower Fall Creek Watershed Management Plan
Public Meeting #2
January 15, 2009 7:00 pm
Lawrence Government Center**

Agenda

**ASSOCIATE
SUPERVISORS**

Rick Bein
Mark Brehob
Heather Buck
Todd Cavender
Robert Eddleman
Greg Gerke
Josh Goode
Bob Kleinops
Mike Massonne
Mark Mongin
Brian Neilson
Jack Shoaf
Scott Schutte
Carroll White

1. Welcome / Sign In ~ *Ron Lauster, Marion SWCD*
2. Overview of Grant Program ~ *Ron Lauster, Marion SWCD*
3. Presentation of the Lower Fall Creek Watershed Management Plan ~
Heather Buck, Christopher B. Burke Engineering, Ltd.
4. Closing Remarks ~ *Ron Lauster, Marion SWCD*

**SUPERVISORS
EMERITUS**

Pete Baldwin
John Kitley
Stanley Smith

**DISTRICT
STAFF**

Ronald Lauster
Marilyn Hughes
Glenn Lange
Julie Farr

Lower Fall Creek Watershed Alliance website: www.lowerfallcreek.org

**DISTRICT STAFF-
CONTRACTUAL**

John Ulmer
Sheila McKinley

**USDA-NRCS
STAFF**

Henry Wallis

CONSERVATION – DEVELOPMENT – SELF-GOVERNMENT

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**Lower Fall Creek Watershed Management Plan
Public Meeting #2
January 15, 2009 7:00 pm
Lawrence Government Center**

Meeting Summary

1. Welcome / Sign In ~ Ron Lauster, Marion SWCD

Ron Lauster, Director of the Marion County SWCD welcomed those in attendance and informed everyone of the agendas, brochures, and contact information located in the rear of the meeting room. Ron also thanked the City of Lawrence for again allowing use of their facilities for the meetings.

2. Overview of Grant Program ~ Ron Lauster, Marion SWCD

Ron provided a brief overview of the IDEM grant awarded to the Marion SWCD that provides funding for the development of a Watershed Management Plan (WMP) and demonstration projects within the watershed.

3. Presentation of the Lower Fall Creek Watershed Management Plan ~ Heather Buck, Christopher B. Burke Engineering, Ltd.

Heather provided a power point summarizing the Lower Fall Creek WMP and

- The purpose of the WMP
- Stakeholder involvement through Steering Committee, workshops, website, public meetings, etc.
- Stakeholder concerns of sediment, nutrients, pathogens, and others (invasive species, fertilizer and pesticide applications, drainage, and flooding)
- Problem statements to address those concerns
- Critical areas identified by the work groups and Steering Committee
- Proposed management measures
- Next steps

During the presentation, discussion developed regarding updates on the streambank stabilization at Windridge Condominiums and the lawsuit between the residents of Indian Lake and the Indiana Department of Transportation. Representatives from both groups encouraged other watershed residents to pay close attention to what is happening in their areas and be vocal when they observe activities detrimental to water quality and their property.

4. Closing Remarks ~ *Ron Lauster, Marion SWCD*

Ron closed the meeting by thanking everyone for attending the meeting and reminding them of the sign in sheet and information materials in the rear of the meeting room. He informed everyone that the planning process is near completion but with potential grant funds and continued partnership there may be additional opportunities for involvement.

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Education and Outreach Meetings Agendas and Summaries

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Lower Fall Creek Watershed Management Plan
EDUCATION & OUTREACH WORKING GROUP MEETING

3:00 pm Thursday, August 16, 2007
Lawrence Government Center
9001 East 59th Street

AGENDA

1. Welcome and Introduction
2. Summary of Grant Requirements and Role of Working Committee
3. Identification of Existing Education & Outreach Efforts
4. Who is Missing From the Table?
5. Topics for Future Education & Outreach Working Committee Meetings
6. Next Meeting Date

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Lower Fall Creek Watershed Management Plan
EDUCATION & OUTREACH WORKING GROUP MEETING

3:00 pm Thursday, August 16, 2007
Lawrence Government Center
9001 East 59th Street

Meeting Summary

Working Group Members Present:

Dean Farr, Watershed Resident
Ron Lauster, Marion County SWCD
Gwen White, IDNR – LARE

Others Present:

Heather Buck, CBBEL
Sheila McKinley, CBBEL

1. Welcome and Introduction

With a small number of members present, introductions were not needed. Ron Lauster, Marion County SWCD, welcomed everyone to the meeting and a sign in sheet was passed around.

2. Summary of Grant Requirements and Role of Working Group

With a small number of members present, a summary of the grant requirements was not needed. The role of the Working Group will be to provide educational opportunities to the stakeholders of the Lower Fall Creek Watershed. Existing resources such as neighborhood liaisons, websites, local media outlets, and workshops will be utilized to inform watershed stakeholders of ways to reduce their impact on the watershed, upcoming opportunities, as well as the information and recommendations developed by the Water Quality and the Land Use/Economic Development Work Groups.

3. Identification of Existing Education & Outreach Efforts

Much time was spent discussing existing opportunities for education and outreach within the Lower Fall Creek Watershed. The group began by discussing the need to obtain more accurate data related to ethnicity and primary language spoken at home. This information will help to steer future efforts in reaching a diverse watershed population.

Ideas mentioned included:

- Local Churches
- The Amos Brown TV Show
- 107.1 Local Hispanic Radio programming
- Farm Co-Ops within the upland areas of the watershed

- Farm Bureau Councils
- Keep Indianapolis Beautiful
- Environmental Education Coordinator for Lawrence/Public schools
- service clubs such as Boy/Girl Scouts and Master Gardeners
- recreational clubs such as canoe clubs and fishing clubs
- coordination of efforts with neighboring watershed groups to reduce duplicative efforts and increase attendance and awareness of the issues.

Gwen White offered to display the Lower Fall Creek introductory brochures as well as the large watershed map within the IDNR display area at the Indiana State Fair. Ron Lauster provided her with several of the brochures.

Dean Farr provided the group with an insert that was recently included in the City of Lawrence utility statements. This insert, discussing the topic of Curbside recycling, may be altered to provide residents with information related to the Lower Fall Creek watershed. It was suggested that other areas should be contacted to see if they have the same capabilities.

4. Who is Missing From the Table?

Discussion focused on the need to identify Critical Areas within the watershed and obtain recommendations from the Water Quality Working Group and the Land Use/Economic Development Working Group. Once this has been completed, the information can be synthesized to prepare a targeted message and to ensure that the most relevant groups are activated and engaged in the process.

- It was also strongly suggested that the local and State governmental representatives for the watershed, as well as those currently residing in the watershed, be contacted and encouraged to become engaged in the process.

5. Topics for Future Education & Outreach Working Group Meetings

- The topics for future Working Group meetings will stem from recommendations provided by the Water Quality and the Land Use/Economic Development Working Groups, as well as needs identified by the Steering Committee.
- As part of the grant requirements, three workshops are needed and it was again suggested that these workshops be coordinated with other local efforts to reduce duplicative efforts. Suggestions were made regarding partnering with the Eagle Creek or Upper White River Watershed groups for those workshops. Other workshop ideas provided by those in attendance included a streambank stabilization project/demonstration and a workshop related to septic tank maintenance as well as highlighting the Septic Tank Elimination Program (STEP) within Marion County.
- The group also briefly discussed possible ideas for the demonstration project required through the grant. These ideas included invasive species removal and planting of native flora and a vegetated swale along the Fall Creek floodplain. Other ideas for the demonstration project are expected to come from the other Working Groups and the Steering Committee as those groups continue to meet.

6. Next Meeting Date

The next Education & Outreach Working Group meeting is scheduled for Thursday, December 13, 2007 to begin at 3:00 pm in the Lawrence Government Center.



Lower Fall Creek Watershed Management Plan
EDUCATION & OUTREACH WORKING GROUP MEETING

3:00 pm Thursday, December 13, 2007
Lawrence Government Center
9001 East 59th Street

AGENDA

1. Welcome and Introduction
2. Summary of Grant Requirements and Role of Working Committee
3. Identification of Critical Areas and Development of Outreach
4. Workshop/Clean Water Indiana Grant
5. Purdue Social Indicators Pilot Study
6. Indiana State Fair Grounds
7. Lake Management Issues
8. Next Meeting Date

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Lower Fall Creek Watershed Management Plan
EDUCATION & OUTREACH WORKING GROUP MEETING

3:00 pm Thursday, December 13, 2007
Lawrence Government Center
9001 East 59th Street

MEETING SUMMARY

Working Group Members Present:

Dean Farr, Watershed Resident
Tina Jones, Indy Parks
Ron Lauster, Marion County SWCD
Gwen White, IDNR – LARE

Others Present:

Heather Buck, CBBEL

7. Welcome and Introduction

Ron Lauster (Marion County SWCD) welcomed everyone, introductions were made, and a sign in sheet was passed around.

8. Summary of Grant Requirements and Role of Working Group

The role of the Working Group will be to provide educational opportunities to the stakeholders of the Lower Fall Creek Watershed in the form of news releases, workshops, and informational updates to the Steering Committee. Existing resources such as neighborhood liaisons, websites, local media outlets, and workshops will be utilized to inform watershed stakeholders of ways to reduce their impact on the watershed, upcoming opportunities, as well as the information and recommendations developed by the Water Quality and the Land Use/Economic Development Work Groups.

9. Identification of Critical Areas and Development of Outreach

Discussion of this topic was moved to follow Item #7 – Lake management issues.

10. Workshop/Clean Water Indiana Grant

Ron Lauster indicated that the Marion SWCD intends to prepare and submit applications for the 2008 Clean Water Indiana: Market Incentive Grant and the Sediment and Nutrient Reduction Grant. Ron discussed the possibility of utilizing the grant funding to provide outreach and education materials related to the proposed workshops for the Lower Fall

Creek Watershed Planning project. Further, demonstration sites or practices established with funding provided by these grants can be visited during the Lower Fall Creek workshops. Funding awards are not expected until April of 2008 and funds must be expended within one calendar year.

11. Purdue Social Indicators Pilot Study

Ron Lauster was contacted by Dr. Linda Prokopy, Assistant Professor, Purdue University, regarding the ongoing development of a Social Indicator framework. Dr. Prokopy was seeking the participation of the Lower Fall Creek WMP project as part of a pilot study. During this study, detailed surveys would be developed specifically for the stakeholders within the Lower Fall Creek, distributed to those within identified critical areas, and compiled as submitted. This process would be utilized pre and post project to indicate any changes in awareness and/or behavior, specifically as a result of the Lower Fall Creek project.

12. Indiana State Fair Grounds

Ron Lauster provided a conceptual view and draft budget regarding the proposed Indiana State Fairgrounds Constructed Wetland Stormwater Treatment System. This system was designed to assist with stormwater runoff treatment from the State Fairgrounds. This area is known for elevated *E. coli* levels. The discussion evoked several questions regarding the date of the design and budget preparation, ownership of the property, and the perceived ability to complete the project.

13. Lake Management Issues

Ron Lauster provided the group with handout materials presented at the Crystal Point Lake Meeting where he discussed the role of the SWCD and provide resource fact sheets regarding Pond Management, Managing Canada Geese, Filter strips, native vegetation, etc. Ron thought that this may be helpful to provide to other interested lake groups within the Lower Fall Creek watershed and to reproduce the fact sheets as handouts for the workshops.

3. Identification of Critical Areas and Development of Outreach

A worksheet identifying the critical areas for each pollutant (as determined by the Land Use/Economic Development Work Group and the Water Quality Work Group) was distributed. After discussion of items 4, 5, 6, and 7 above, the Education and Outreach Work Group decided to combine all three pollutants into one workshop and hold one workshop in each of the agricultural, sub-urban, and urban settings tailored to meet the needs and issues associated with those settings.

Ron Lauster and Tina Jones agreed to meet in early January to discuss the historic native planting area (Central Ave to Pennsylvania Ave) along Fall Creek and whether it can be combined with the spring workshop as a discussion topic and field visit. Outcomes of this meeting and ideas for the summer and fall workshops will be discussed at the next Education and Outreach Work Group meeting.

8. Next Meeting Date

The next Education & Outreach Working Group meeting is scheduled for Tuesday, February 12, 2008 to begin at 3:00 pm in the Lawrence Government Center.



Lower Fall Creek Watershed Management Plan
EDUCATION & OUTREACH WORKING GROUP MEETING

3:00 pm Thursday, February 28, 2008
Lawrence Government Center
9001 East 59th Street

AGENDA

1. **Social Indicators Pilot Study** – Dr. Linda Prokopy, Purdue University
2. **Workshop information**
 - a. **Shoreline Stewards** – Suburban – Guiding the landowner/HOA in developing a Lake/Shoreline Management Plan for their property and/or community
 - b. **Backyard Conservation** – Urban – Presentations and hands on activity to show homeowners techniques to reduce polluted runoff leaving their property
 - c. **Regulated Drain vs. Natural Waterway** – Rural – Channel maintenance techniques, log jams, riparian buffers and how projects differ when dealing with a regulated drain or a natural waterway
3. **BMP Demonstration Project**
4. **Next Meeting Date**

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Lower Fall Creek Watershed Management Plan
EDUCATION & OUTREACH WORKING GROUP MEETING

3:00 pm Thursday, February 28, 2008
Lawrence Government Center
9001 East 59th Street

MEETING SUMMARY

Working Group Members Present:

Dean Farr, Watershed Resident
Tina Jones, Indy Parks
Ron Lauster, Marion County SWCD

Others Present:

Heather Buck, CBBEL
Linda Prokopy, Ph.D., Purdue University

1. Social Indicators Pilot Study – Dr. Linda Prokopy, Purdue University

Dr. Linda Prokopy with Purdue University was present to discuss the Lower Fall Creek Watershed Project as a participant in the Social Indicators Pilot Study. This study is being driven by US Environmental Protection Agency (EPA) Region 5 to test a system for using social indicators in non-point source (NPS) pollution management. Social Indicators are measures that describe the capacity, skills, awareness, knowledge, values, belief, and behaviors of individuals, households, organizations, and communities. Many education and outreach attempts through 319 grants have been utilized to change behaviors or raise awareness in stakeholders in order to change behaviors and reduce NPS pollution. By completing this survey and analysis of results the group and other pilot study groups will be provided with consistent measure of changes within a watershed to better develop educational materials and gauge the success of their outreach efforts. More information on the Social Indicators and the US EPA Region 5 study can be found at:

<http://www.uwex.edu/ces/regionalwaterquality/Flagships/Indicators.htm>

2. Workshop information

Updates regarding the three workshops were provided.

- a. **Shoreline Stewards:** *Suburban – Guiding the landowner/HOA in developing a Lake/Shoreline Management Plan for their property and/or community* - June 12, 2008 and August 21, 2008

Mark Mongin (SePro and Indiana Lake Management Society), Ron Lauster (Marion SWCD), and Heather Buck (CBBEL) have been meeting to develop the Shoreline Stewards workshop. The workshop will be divided into 2 sessions to allow ample time to produce a lake or property management plan designed to enhance and protect water quality. These sessions will be held at the Garrison at the Fort Benjamin Harrison State Park in Lawrence.

The first session will discuss the assessment of the property or lake shore and why planning is important. The second session will allow participants to discuss their issues with local experts during several round table sessions. A Clean Water Indiana Grant obtained by the Marion County SWCD will be utilized for printing of the Backyard Conservation Sheets which will be provided to the workshop attendees.

b. Backyard Conservation: *Urban – Presentations and hands on activity to show homeowners techniques to reduce polluted runoff leaving their property.*

Few details are available regarding this workshop as planning is just beginning. It is anticipated that this workshop will be held in the early fall with discussions on topics such as rain gardens, rain barrels, native plantings, porous pavement, and other such BMPs that can be implemented on existing residential properties. Suggestions for target communities included the Near Eastside Community Organization, and Community Development Corporations such as the Near North, Kennedy King, and Mapleton Fall Creek.

c. Regulated Drain vs. Natural Waterway: *Rural – Channel maintenance techniques, log jams, riparian buffers and how projects differ when dealing with a regulated drain or a natural waterway* It is anticipated that this workshop will be held in the winter in the Madison or Hancock portions of the watershed. Topics such as riparian buffers, set back, maintenance easements, and how these issues may affect USDA Incentive programs for establishment of riparian buffers or grass filter strips. More details will be provided as this workshop is developed.

3. BMP Demonstration Project

The potential BMP demonstration project with Indy Parks was discussed briefly. It was mentioned that a native planting project along Fall Creek was being planned through Indy Parks. Few details are available as this project will require grant funds and several other partnerships in order to be successfully implemented. Details will be provided as they become available.

4. Next Meeting Date

The next meeting will be held on May 13, 2008 to develop the Social Indicators survey.



Lower Fall Creek Watershed Management Plan
EDUCATION & OUTREACH WORKING GROUP MEETING

11:00 am Tuesday, May 13, 2008
Lawrence Government Center
9001 East 59th Street

AGENDA

1. Welcome and Introductions
2. Social Indicators Pilot Study – Dr. Linda Prokopy, Purdue University
3. Next Meeting

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Lower Fall Creek Watershed Management Plan
EDUCATION & OUTREACH WORKING GROUP MEETING

11:00 am Tuesday, May 13, 2008
Lawrence Government Center
9001 East 59th Street

MEETING SUMMARY

Working Group Members Present:

Dean Farr, Watershed Resident
Ron Lauster, Marion County SWCD
Georgie Perkins, Lake Maxin Hall Representative
Mark Rumreich, Indian Lake Representative
Gwen White, IDNR-LARE

Others Present:

Heather Buck, CBBEL
Dr. Linda Prokopy, Purdue University

1. Welcome and Introductions

Heather Buck opened the meeting with thanking everyone for attending the day's session and giving a brief discussion on why the Lower Fall Creek Watershed Alliance would be utilizing the Social Indicators survey.

Attendees introduced themselves.

Ron Lauster provided attendees with the general Lower Fall Creek Watershed brochure as well as the registration brochure for the upcoming Shoreline Stewards workshop to be held on June 12 and August 21, 2008.

2. Social Indicators Pilot Study – Dr. Linda Prokopy, Purdue University

Dr. Prokopy provided the group with background information on the Social Indicators research project. This project is a US EPA Region 5 pilot study to attempt to measure the changes in awareness, attitudes, and behaviors as a result of 319 education and outreach efforts. Survey packets were utilized to determine which questions would be asked of stakeholder regarding:

- Rating of water quality
- Opinions on how actions impact water quality
- Water quality impairments
- Sources of water pollutants
- Practices to improve water quality

- Consequences of poor water quality
- Making decisions regarding property maintenance
- Trusted sources of information
- Demographics

Dr. Prokopy will formulate the information provided by the group into a draft survey which will be distributed to the group for a second review. Once the group is comfortable with the draft document printing can be completed. It is anticipated that the first information will be sent to 1,000 randomly selected Lower Fall Creek Watershed residents on September 2, 2008. The following process will be utilized to distribute the surveys:

- On September 2, 2008 a letter will be mailed to selected residents letting them know that a survey will be sent to them and that it is important for them to return the completed survey.
- One week later, the survey will be mailed to selected residents with postage provided.
- 2 weeks after the survey has been mailed a reminder postcard will be sent to those resident that have not returned the completed survey.
- Finally, a second survey will be mailed via certified mail to those residents that have not submitted their completed survey 6 weeks after the survey was mailed.

The Lower Fall Creek Watershed Alliance will need to provide addresses for residential properties within the watershed and invite stakeholder representatives to a working meeting to develop the survey. Dr. Prokopy's groups will provide all costs for printing, mailing, data entry, and analysis of completed surveys.

3. Next Meeting

The comment and review of the draft survey will be complete electronically. The next meeting will be scheduled as needed to prepare for the Backyard Conservation and Regulated vs. Non-regulated Drain workshops.

Land Use and Economic Development Meetings Agendas and Summaries

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Lower Fall Creek Watershed Management Plan
LAND USE & ECONOMIC DEVELOPMENT WORKING GROUP MEETING

3:00 pm Tuesday, August 14, 2007
Lawrence Government Center
9001 East 59th Street

AGENDA

1. Welcome and Introduction
2. Summary of Grant Requirements and Role of Working Group
3. Discuss Current Land Use and Land Use Information
4. Discuss Economic Development Plans and Projects
5. Topics for Future Working Committee Meetings
6. Next Meeting Date

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Lower Fall Creek Watershed Management Plan
LAND USE & ECONOMIC DEVELOPMENT WORKING GROUP MEETING

3:00 pm Tuesday, August 14, 2007
Lawrence Government Center
9001 East 59th Street

MEETING SUMMARY

Working Group Members Present:

Jason Armour, Fishers Engineering Department
Chris Barnett, Near North Development Corporation
Bonnie Chastain, Windridge Development Neighborhood Association
Tom Crouch, Lawrence Economic Development
Phil Harman, Windridge Development Neighborhood Association
Tim Hayes, Lawrence Planning Department
Jim Hoskins, Indian Lake Neighborhood Association
Anna Jetmore-Vargas, Indy Parks – Land Stewardship
Lori Kaplan, City of Lawrence DPW
Kevin Kelly, Noblesville Economic Development
Ron Lauster, Marion County SWCD
Gary Rosenberg, Windridge Development
Mark Rumreich, Indian Lake Neighborhood Association
Dennis Slaughter, Indianapolis Planning Department
Gwen White, IDNR – LARE

Others in Attendance:

Sheila McKinley, CBBEL
Sky Schelle, IDEM – OWQ

1. Welcome and Introduction

Ron Lauster opened the meeting by thanking those in attendance for their interest and participation and asked participants introduce themselves.

2. Summary of Grant Requirements and Role of Working Committee

Sheila McKinley explained that the Marion County SWCD submitted and received a 319 grant funds to prepare a Watershed Management Plan (WMP) for the Lower Fall Creek Watershed. Grant funds were awarded in December 2006 and expire in May 2008. CBBEL was hired by the SWCD in May 2007 to facilitate the planning process and prepare the WMP. IDEM's WMP Checklist requires the Plan to identify water quality

problems and causes, identify sources of water quality impairments, identify critical areas, and best management practices to improve water quality. Development of the WMP is being led by a Steering Committee of local leaders and decision-makers. Three Working Groups have been established to work through the specifics – Land Use & Economic Development, Water Quality, and Education & Outreach.

The role of the Land Use & Economic Development Working Group is to determine general land use categories; identify where and how development (and redevelopment) is occurring in the watershed; identify critical areas and best management practices; discuss current standards for development and redevelopment and determine if they are good or bad for water quality and/or economic development.

3. Discuss Current Land Use and Land Use Information

Sheila shared with the group 2 types of existing land use data – 1) Multi-Resolution Land Characteristic data derived from 1992 satellite imagery and 2) land use based on State Land Use Codes (LUC) for each county (shown below).

LAND USE CODE	Number of Categories / Land Use Code			
	HAMILTON COUNTY	HANCOCK COUNTY	MADISON COUNTY	MARION COUNTY
0 - Unknown	1	1	0	1
100 – Agriculture	4	3	2	1
300 – Industrial	4	6	0	2
400 – Commercial	19	12	0	6
500 – Residential	16	11	2	8
600 – Exempt	5	7	1	7
900 – Other	1	0	2	4
TOTAL	50	40	7	29

The Working Group quickly dismissed the 1992 data because so much has changed in the watershed since then – especially in Hamilton County. Following much discussion, the Working Group concluded that the categories from the Land Use Code did not represent the categories of land use that would impact water quality. The Working Group decided on the following 7 categories:

- 1) Agriculture (cropland or pasture)
- 2) Woodland/Park/Preserves/Wetlands/Floodplains/Cemeteries
- 3) Golf Courses
- 4) Residential (wooded, low and medium density)
- 5) Commercial/Industrial/Apartment Complexes (> 75% imperviousness, non-generating pollutant source, non-NPDES)
- 6) Commercial/Industrial (potential pollutant generators, NPDES permits – CRTK, CAFO, auto salvage, landfill, private WWTP)
- 7) Active Rule 5 (land cleared for construction)

Sheila agreed to work with the individual planning departments, parks, departments, SWCDs, and IDEM to produce an updated land use map for the watershed.

4. Discuss Economic Development Plans and Projects

Unfortunately the Working Group meeting ran out of time and didn't have time to discuss economic development plans and projects. All agreed to dedicate time to this important discussion at the next Working Group meeting. Sheila offered to compile what she could to aid with the discussion.

5. Topics for Future Water Quality Working Committee Meetings

The following summarizes the discussion throughout the Working Committee meeting for discussion at future meetings:

- 1) Determine rate of growth and land uses in transition
 - Review historic aerial photography to determine rate of growth in watershed
 - Identify short and long-term development plans in watershed
- 2) Identify Critical Areas and BMPs to improve water quality
 - Isolate land uses based on risk to water quality
 - Incorporate growth models/heat island research conducted by Butler, IUPUI – CEES, and KIB
 - Identify regulated drains and maintenance procedures
 - Incorporate septic information (Barrett Law, topography, soils, floodplains, etc.)
 - Identify agricultural areas with livestock
 - Identify transportation corridors (RR and Hwy)
- 3) Review Development Standards
 - Determine impact on water quality
 - If amended to improve water quality, determine impact on economic development
 - Ensure participation from the planning and economic development entities in Marion County, Hamilton County, Madison County, Hancock County, City of Lawrence, City of Noblesville, Town of Fishers, and Town of McCordsville.

6. Next Meeting Date

The next Land Use & Economic Development Working Group meeting is scheduled for Tuesday, November 13, 2007 at 9:00 am in Room 200 of the Lawrence Government Center.

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Lower Fall Creek Watershed Management Plan
LAND USE & ECONOMIC DEVELOPMENT WORKING GROUP MEETING

9:00 am Tuesday, November 13, 2007
Lawrence Government Center
9001 East 59th Street

AGENDA

1. Welcome and Introductions
2. Project Update
3. Prioritize Critical Land Use/Economic Development Issues
4. Identify Critical Land Use/Economic Development Areas
5. Next Meeting Date

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Lower Fall Creek Watershed Management Plan
LAND USE & ECONOMIC DEVELOPMENT WORKING GROUP MEETING

9:00 am Tuesday, November 13, 2007
 Lawrence Government Center
 9001 East 59th Street

MEETING SUMMARY

Working Group Members Present:

Chris Barnett, Near North Development Corporation
 Tom Crouch, Lawrence Economic Development
 Tim Hayes, Lawrence Planning Department
 Roger Johnson, Noblesville Planning Department
 Ron Lauster, Marion County SWCD
 Mark Rumreich, Indian Lake Neighborhood Association
 Dennis Slaughter, Indianapolis Planning Department

Others in Attendance:

Sheila McKinley, CBBEL
 Sky Schelle, IDEM – OWQ

1. Welcome and Introduction

Ron Lauster opened the meeting by thanking those in attendance for their interest and participation and asked participants introduce themselves.

2. Project Update

Sheila McKinley provided an overview of the changes that were made to the Land Use map to better reflect the impact land uses have on water quality as opposed to using standard land use codes. This process reduced the number of land use categories from as many as 50 into 1 of 7 groups.

LAND USE	DESCRIPTION	PERCENT
AG	cropland or pasture	37.6%
COM, IND	>75% imperviousness, potential pollutant generator, NPDES permits, CRTK, CAFO, auto salvage, landfill, private WWTP	0.5%
COM, IND, EDU, RES,	>75% imperviousness, non-generating pollutant source, non-NPDES	19.9%
GOLF		2.3%

OPEN SPACE	woodland, park, preserves, wetlands, floodplains, etc	5.7%
RES	wooded, low and medium density	33.6%
RULE 5	cleared for construction	0.4%

This modified land use information was used to run 3 different development scenarios in the Land Use Central Indiana (LUCI) projected into 2040. These included: Current, Build Out, and Conservative rates of growth. The resulting land uses were entered into the Long-Term Hydrologic Impact Analysis (L-THIA) model to determine impact of land use change on water quality. According to these results:

- similar water quality results between the Current and 2040 Conservation Scenario (exception oil & grease 88% increase)
- Build Out 75% decrease in Nitrogen, Phosphorus, and Suspended Solids (removal of agricultural practices)
- Build Out 68% increase in BOD (residential)
- Build Out 2 times bacteria (residential)

The scale of the LUCI model is fairly large and parameters somewhat limiting but a fruitful exercise to reaffirm how changes in land use can impact water quality.

Sheila added that CBBEL staff has been busy reviewing planning documents, talking to staff in Indianapolis, Lawrence, Fishers, Noblesville, Hamilton County, Madison County, and Hancock County to compile information on:

- Long Range Planning – plans for growth, development, and open space
- Critical Areas – identified in Plans of by staff
- Development Standards – requirements for Low Impact Development (LID), green development, smart growth, and floodplain development
- Rule 5 – estimated active development sites
- Tree Cover – percent cover based on studies and/or aerial photography; programs to preserve/enhance tree cover
- Waterways, Floodplains, and Regulated Drains – list, studied/unstudied, maintenance procedures

3. Prioritize Critical Land Use/Economic Development Issues

Sheila provided an overview of the data collected and mapped to date. The first exhibit included: CSOs, impaired waterways, sewer service areas, soil suitability, septic tank elimination program areas (STEP), and 100-year floodplains. The second illustrated the location of superfund site, brownfields, LUST/UST, NPDES, and CFO,

Members of the Work Group discussed land use/economic development issues in the watershed which resulted in a Land Use Influences Map including:

- development at Exit 10 (Noblesville & Fishers) and Exit 5 (Fishers) along I-69
- influence of I-69, I-74, Mt. Comfort Airport, proposed Airport south of Lapel
- growth in Fishers, Noblesville, and McCordsville
- BioCrossroads infill development (in wellfield) Indianapolis

4. Identify Critical Land Use/Economic Development Areas

Sheila led the Work Group through an exercise to identify Critical Areas in the Lower Fall Creek Watershed. This included sediment, nutrients, and bacteria; typical land uses

associated with each pollutant; and critical areas in the Lower Fall Creek Watershed (blank). Critical Areas discussed by the Work Group included:

- Sediment
 - *Streambank erosion at Windridge Condominiums*
 - *Erosion and sediment control enforcement in City of Lawrence*
 - *Sedimentation of Indian Lake*
 - *Land development proposal at Exit 10*
- Nutrients
 - *Over application of fertilizers (residential and golf courses)*
 - *Wellfield Protection Areas*
- Bacteria
 - *Indiana State Fair Grounds*
 - *BioCrossroads Development*
 - *Wellfield Protection Areas*
 - *Septic areas*
 - *Low income neighborhood where kids frequently swim in Fall Creek*

Before the next meeting, CBBEL staff will gather additional information on each of these Critical Areas to assist with the prioritizing.

5. Next Meeting Date

The next Land Use & Economic Development Working Group meeting is scheduled for Tuesday, February 12, 2008 at 9:00 am in Room 200 of the Lawrence Government Center.

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Lower Fall Creek Watershed Management Plan
LAND USE & ECONOMIC DEVELOPMENT WORKING GROUP MEETING

9:00 am Tuesday, February 12, 2008
Lawrence Government Center
9001 East 59th Street

AGENDA

1. Welcome and Introductions
2. Project Update
3. Review Critical Areas & Discuss Management Measures
4. Discuss Code & Ordinance Worksheet (COW) Tool
5. Discuss Review Schedule of DRAFT Watershed Management Plan

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Lower Fall Creek Watershed Management Plan
LAND USE & ECONOMIC DEVELOPMENT WORKING GROUP MEETING

9:00 am Tuesday, February 12, 2007
Lawrence Government Center
9001 East 59th Street

MEETING SUMMARY

Working Group Members Present:

Chris Barnett, Near North Development Corporation
Tom Crouch, Lawrence Economic Development
Roger Johnson, Noblesville Planning Department
Ron Lauster, Marion County SWCD
Mark Rumreich, Indian Lake Neighborhood Association
Dennis Slaughter, Indianapolis Planning Department

Others in Attendance:

Sheila McKinley, CBBEL

1. Welcome and Introduction

Ron Lauster opened the meeting by thanking those in attendance for their interest and participation.

2. Project Update

Ron provided an update on the planning and partnering efforts of the Education and Outreach Work Group. While the time, date, and details have yet to be worked out, 3 workshops are being planned for 2008. These include: Pond Maintenance, Backyard Conservation, and Regulated Drain vs. Natural Streams. Ron encouraged everyone to periodically check the Lower Fall Creek WMP (www.lowerfallcreek.org) for updates.

Sheila McKinley provided a review of the Land Use Influences discussed at the last Land Use & Economic Development Work Group meeting. These include:

- development at Exit 10 (Noblesville & Fishers) and Exit 5 (Fishers) along I-69
- influence of I-69, I-74, Mt. Comfort Airport, proposed Airport south of Lapel
- growth in Fishers, Noblesville, and McCordsville
- BioCrossroads infill development (in wellfield) Indianapolis

Sheila referred to large exhibits illustrating the Critical Areas identified at the last meeting. These include:

- Sediment
 - *Streambank erosion at Windridge Condominiums*
 - *Erosion and sediment control enforcement in City of Lawrence*
 - *Sedimentation of Indian Lake*
 - *Land development proposal at Exit 10*
- Nutrients
 - *Over application of fertilizers (residential and golf courses)*
 - *Wellfield Protection Areas*
- Bacteria
 - *Indiana State Fair Grounds*
 - *BioCrossroads Development*
 - *Wellfield Protection Areas*
 - *Septic areas*
 - *42nd & College Neighborhood where children frequently swim in Fall Creek*

3. Review Critical Areas & Discuss Management Measures

Sheila asked the Land Use & Economic Development Work Group to brainstorm possible Management Measures for the Critical Areas mapped. Management Measures to reduce Sediment included the need for the Lawrence to adopt/enforce an Erosion and Sediment Control (ESC) Ordinance. Ideally it would contain some sort of provision requiring contractors to have obtained an approved ESC training or certification. This training could be through a partnership with the Marion County SWCD and/or Hoosier Heartland RC&D. Highly Erodible Lands (HEL) needs to be acknowledged in the planning process – possibly as an overlay zone. Although there is not much the WMP can do to address the streambank erosion problem at Windridge Condominiums or the sedimentation of Indian Lake, both provide very good educational opportunities and lessons learned for future growth and development.

Management Measures to reduce Nutrients targeted over application of fertilizers on golf courses and residential lake properties. Mark Rumreich shared an article from Stormwater Magazine (November/December 2007) about restrictions that Minnesota has placed on phosphorus in fertilizers. Ron added that the SWCD has applied for cost-share money to assist lake communities better manage the neighborhoring properties. Marion County has a good Wellfield Protection Ordinance and a strong business education program through MCWEC (Marion County Education Corporation). A similar Wellfield Protection Ordinance is needed for the wellfield in Madison County.

Management Measures to reduce Pathogens should focus on understanding the relationship of groundwater and surface water. This effort could establish guidelines for development and redevelopment in wellfield protection areas. Other than bringing awareness to the issue, the Work Group agreed that there is really little they can do with regard to septic systems and limited resources should be focused elsewhere. The City of Indianapolis is implementing the Septic Tank Elimination Program (STEP) and Long-Term Control Plan (LTCP). Tom Crouch added that almost all of Lawrence is now on sewer. Roger Johnson noted that in Hamilton County development is required to connect to sewer if within 300 feet. The Work Group wondered if the effluent from the State Fair Grounds is being addressed by Health and Hospital and the Fair Board or as part of the City's LTCP.

4. Discuss Code & Ordinance Worksheet (COW) Tool

Sheila passed out copies of the DRAFT EPA document called “Land Use Planning as the First BMP: Linking Stormwater to Land Use” and the Center for Watershed Protection’s DRAFT “Code and Ordinance Worksheet (COW) Tool”. Both focus on the impact that land use and land development practices have on stormwater runoff and water quality. And the need for a stronger working relationship between stormwater managers and land use planners – focused on water quality at a watershed scale. The articles generated a very fruitful discussion within the Work Group and it sparked a curiosity among the land use planners to better understand stormwater issues and integration into land use planning and land development processes.

5. Discuss Review Schedule of DRAFT Watershed Management Plan

Sheila noted that this would be the last time the Land Use & Economic Development Work Group would need to meet as a group and thanked everyone for their participation during the meetings as well as between meetings. The DRAFT WMP should be available for the Work Group to review and comment in May 2008. Ron strongly suggested the Work Group check the Lower Fall Creek WMP website www.lowerfallcreek.org.

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Water Quality Working Group Meetings Agendas and Summaries



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Lower Fall Creek Watershed Management Plan
WATER QUALITY WORKING GROUP MEETING

3:00 pm Tuesday, August 7, 2007
Lawrence Government Center
9001 East 59th Street

AGENDA

1. Welcome and Introduction
2. Summary of Grant Requirements and Role of Working Committee
3. Summary Existing Water Quality Sampling Efforts
4. Identification and Selection of Water Quality Sampling Sites
5. Topics for Future Water Quality Working Committee Meetings
6. Next Meeting Date

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**Lower Fall Creek Watershed Management Plan
WATER QUALITY WORKING GROUP MEETING**

3:00 pm Tuesday, August 7, 2007
Lawrence Government Center
9001 East 59th Street

MEETING SUMMARY

Working Group Members Present:

Robert Barr, IUPUI-CEES
Fred Beyne, Mallard Lake Home Owners Association
Crist Blassaras, Madison County SWCD
Dean Farr
Bill Guertal, USGS
Jim Hoskins, Indian Lake Home Owners Association
Lori Kaplan, City of Lawrence DPW
Joe Ketterman, Marion County Health Department
Ron Lauster, Marion County SWCD
Gary Rosenberg, Windridge Development
Andy Van Treese, Indian Lake Home Owners Association
Lenore Tedesco, IUPUI-CEES
Paul Werderitch, City of Indianapolis DPW/OES
Gwen White, IDNR - LARE

Others in Attendance:

Zach Bishton, CBBEL
Sheila Mckinley, CBBEL
Crystal Rehder, IDEM - OWQ
Sky Schelle, IDEM - OWQ

1. Welcome and Introduction

Ron Lauster opened the meeting by thanking those in attendance for their interest and participation and asked participants to introduce themselves.

2. Summary of Grant Requirements and Role of Working Committee

Zach Bishton gave a summary of the requirements of the Lower Fall Creek Watershed Management Plan grant. Zach explained that the grant requires the collection of additional water chemistry data from 10 sites within the watershed during no less than eight sampling events. The parameters required by the grant include Biological Oxygen Demand (BOD), Chemical Oxygen Demand (COD), Total Kjeldahl Nitrogen (TKN), Nitrate, Orthophosphorus,

Total Phosphate, Total Suspended Solids, and *E.coli*. The overall intent of the Water Quality Working Group was also discussed. It will be the role of the Working Group to determine the need for and the location where additional water quality sampling will be conducted, to oversee the analysis of water quality data that is collected, to determine pollutant loading targets, to identify water quality problems in the watershed, and to make recommendations for improving water quality problems and enhancing areas in the watershed that are considered to be beneficial to water quality.

3. Summary Existing Water Quality Sampling Efforts

Much existing water quality data has already been collected within the Lower Fall Creek Watershed. Working Group members received a map and spreadsheet that identified known active and existing water quality sampling sites within the watershed. Data in the watershed has been collected by the Marion County Health Department, the City of Indianapolis DPW, IDEM, USGS, and Indiana University South East. Robert Barr, with IUPUI also discussed a map identifying the location of known sampling sites within the Lower Fall Creek Watershed. The group then discussed whether it was necessary to collect additional water quality data within the watershed or if it would be more beneficial to begin analyzing and synthesizing existing water quality data.

4. Identification and Selection of Water Quality Sampling Sites

Zach presented a summary table which identified each of the six subwatersheds that make up the Lower Fall Creek Watershed, the total number of known active sampling sites that are located in each subwatershed, the predominant land use types within each subwatershed and the corresponding pollutant loading rankings for each subwatershed based on L-THIA and STEP-L pollutant loading models. The table is identified below.

Subwatershed	Active Sampling Sites	Land Use	LTHIA Pollutant Loading Ranking	STEP-L Pollutant Loading Ranking
Mud Creek Headwaters	0	Urban- 22% Agricultural- 73% Forest- 3%	1	1
Mud Creek - Sand Creek	0	Urban- 42% Agricultural- 46% Forest- 9%	3	3
Indian Creek - Steele Ditch	0	Urban- 39% Agricultural- 56% Forest- 3%	2	2
Fall Creek - Lawrence Creek	2	Urban- 68% Agricultural- 10% Forest- 19%	5	5
Fall Creek - Devon Creek	1	Urban- 86% Agricultural- 0% Forest- 11%	6	6
Fall Creek - Minnie Creek	9	Urban- 97% Agricultural- 0% Forest- 1%	4	4

Based on this data, the group continued to discuss the need for additional water quality data. Overall, group members seemed to agree that there was a need to focus future water quality monitoring efforts on biological health, habitat evaluations, and geomorphic changes within the watershed.

Ron mentioned that one of his concerns was whether or not the contract for the grant could be amended to change the scope to focus on biological and habitat evaluations as opposed to water chemistry evaluations. Sky Schelle, IDEM Project Manager mentioned that he would seek clarification from his supervisor regarding the possibility of amending the contract language.

The group agreed that future water quality sampling efforts, whether focusing on chemistry, biology, or habitat, should be concentrated in the more rural headwater subwatersheds, which were identified as having the greatest pollutant loading rankings and the least amount of historic water quality data.

5. Topics for Future Water Quality Working Committee Meetings

The group also discussed the following known water resource problems in the Lower Fall Creek Watershed:

- Members from the Indian Lake and Mallard Lake Home Owners Associations and Windridge Development raised numerous concerns regarding problems associated with flooding, sedimentation, and severe bank erosion in the watershed. The Indiana Lake Association has purchased its own dredge machine to help remove sediments from the lake.
- There seems to be a lack of local enforcement of Rule 5 and other erosion and sediment control ordinances throughout the watershed.
- There is a need for improved coordination and management between city, county, and state representatives with regard to management of Fall Creek and its tributaries
- There is a need to enhance the public's awareness of the Lower Fall Creek Watershed Project to ensure that the final plan is effective and that local politicians are aware of the local support for the Watershed Management Plan.
- Concerns were also raised regarding geomorphic changes to Fall Creek and its tributaries as growth in the watershed continues to occur.

In addition the group continued to discuss the overall role of the Working Group. Crist Blassaras asked if the working committee would be responsible for setting water quality/pollutant loading targets. It was mentioned that the Fall Creek TMDL had already set pollutant reduction targets for *E.coli* concentrations in the portions of Fall Creek downstream of Geist Reservoir. The group agreed that a portion of one of the future meetings will be spent determining what pollutant loading targets will be established for other water quality parameters such as nitrogen, phosphorus, and sediment.

Several members mentioned the importance of making sure that the Water Quality Working Group be kept informed with regard to what the Land Use and Economic Development Working Group and the Public Education Working Group are discussing.

6. Next Meeting Date

The next meeting was scheduled for November 13, 2007 at 3:00pm in Room 200 of the Lawrence Government Center.

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Lower Fall Creek Watershed Management Plan
WATER QUALITY WORKING GROUP MEETING

3:00 pm Tuesday, November 13, 2007
Lawrence Government Center
9001 East 59th Street

AGENDA

1. Welcome and introduction
2. Project status update
3. Discuss and prioritize water quality issues
4. Identify critical areas
5. Schedule next meeting date

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Lower Fall Creek Watershed Management Plan
WATER QUALITY WORKING GROUP MEETING

3:00 pm Tuesday, November 14, 2007
Lawrence Government Center
9001 East 59th Street

MEETING SUMMARY

Working Group Members Present:

Crist Blassaras, Madison County SWCD
Dean Farr, Private Citizen
Jim Hoskins, Indian Lake Home Owners Association
Joe Ketterman, Marion County Health Department
Ron Lauster, Marion County SWCD
Gail McDowell, Geist Watershed Alliance
Pam Thevenow, Marion County Health Department
Andy Van Treese, Indian Lake Home Owners Association
Paul Werderitch, City of Indianapolis DPW/OES

Others Present:

Zach Bishton, CBBEL

1. Welcome and Introduction

All those in attendance introduced themselves and identified the organization they were representing. Gail McDowell with the Geist Lake Watershed Alliance introduced herself and mentioned that she is assisting in the establishment of a citizen's group that is interested in education residents in the Geist Reservoir Watershed about the steps they can take to reduce the impact that their daily activities are having on water quality in the watershed. Crist recommended that Gail or another member of her group attend the Indiana Watershed Leadership Academy.

2. Project Status Update

Zach Bishton gave an update on the status of the Lower Fall Creek Watershed Project. A partial draft of the Lower Fall Creek Watershed Management Plan will be provided to the IDEM by the end of November. The draft will include the introduction, background and history, water quality problems and causes, and critical areas discussions. The Land Use Working Group met this morning to discuss and identify key issues and critical areas in the Lower Fall Creek Watershed. The Public Education Working Group meets again on December 13, 2008, and will discuss how best to develop education efforts addressing the key issues identified by both the Water Quality and Land Use Working Groups. A copy of the IDEM's letter approving the water quality

sampling scope changed was distributed. Beginning in April, Commonwealth Biomonitoring will conduct macroinvertebrate sampling qualitative habitat evaluations in the Mud Creek, Sand Creek and Indian Creek Subwatersheds. The Group discussed the importance in ensuring that Commonwealth was aware of previous work conducted by the Health Department and the United States Geological Survey.

3. Discuss and Identify Water Quality Issues

A handout summarizing of baseline water quality information was distributed and is included at the end of this meeting summary. This spreadsheet identified the key data sets and studies that have been evaluated in order to begin identifying water quality problems in the Lower Fall Creek watershed. The Group discussed the potential impact that the watershed management planning process might have on mercury and PCB problems present throughout the watershed. The Group was in agreement that these issues would likely be a low priority for the project due to the fact that these pollutants are associated with legacy pollutant sources and because atmospheric deposition is likely the leading cause of mercury in surface water.

Sediments, nutrients, and pathogens were the pollutant sources of main concern in the Lower Fall Creek Watershed. Each pollutant was discussed in terms of the key issues and sources that are impacting pollutant loadings to fall creek waterways.

Sediments

- Need for enforcement of Rule 5 requirements throughout the watershed.
 - The Indian Lake Home Owners Association has reached a settlement with the Indiana Department of Transportation with regard to impacts that a local construction project had on sediment loadings to Indian Lake. The Group reported that they had received a \$250,000 settlement from INDOT.
 - Group Members agreed that there is a need to develop a public outreach campaign that increases citizen awareness of Rule 5 requirements. The Group discussed the possibility of developing a program whereby developers would have to display the results of their most recent site inspections by displaying a certain color flag near the access point of their construction entrance. This effort would be coordinated with a public relations campaign promoting the meaning behind the flags. A green flag would indicate that the site passed it's most recent inspection and a red flag may indicate that the site failed it's most recent inspection.
 - Crist mentioned that there is software available that can be utilized to send email notifications to all active Rule 5 sites reminding them that it is time for their next self-inspection.
- Conservation Tillage Practices
 - John South mentioned that he believed that the conservation tillage practices in the Mud Creek and Sand Creek Watersheds are likely above average for Hamilton County. John also suggested that someone from the local SWCD may be able to conduct tillage transects for this portion of the watershed.

Nutrients

- Commercial and Residential Fertilizers
 - The Group discussed the lack of awareness among both residential and commercial landowners as it relates to fertilizer application. The Group discussed the possibility of coordinating with local nurseries to conduct education and outreach efforts at the point of sale.
 - The Group discussed the possibility of discussing fertilizer education programs directly with landowners who live on or adjacent to water bodies in the watershed.
 - Golf Courses were also identified as a contributing land use.
- Waterfowl and Wildlife
 - The Group discussed the impact that waterfowl populations have on waterways and discussed options for eliminating those problems through coordinating with landowners who live adjacent to waterways and by providing education to neighborhood associations.

Pathogens

- Failing or Inadequate Septic Systems
 - The Group discussed the fact that the City's STEP program will be beneficial but also discussed the fact that the problem extends to areas not identified in the STEP program.
- CSOs
 - CSOs are also a major form of the bacteria loadings in the watershed, but will be significantly reduced through the City's Long Term Control Plan (LTCP).
- The Group discussed the water quality impacts associated with the State Fairgrounds and mentioned that they thought further evaluation of the previously proposed constructed wetlands site should be considered as a result of the plan.

4. Identify Critical Areas

The table below identifies critical areas discussed during the meeting.

DOCUMENTED WATER QUALITY POLLUTANT IN LOWER FALL CREEK	TYPICAL LAND USE/LAND USE PRACTICE ASSOCIATED WITH POLLUTANT		CRITICAL AREAS IN LOWER FALL CREEK WATERSHED
SEDIMENT impacts: <u>Aquatic Life</u> – <i>reduces plant growth, smothers and covers spawning grounds and benthic habitats</i> <u>Recreational Impact</u> – <i>reduces water clarity, reduces aesthetic appeal, stresses sport fishing populations</i> <u>Drinking Water</u> – <i>increases drinking water treatment costs, damages pumps and infrastructure</i>	BENEFIT water quality: <ul style="list-style-type: none"> • Riparian Buffers • Filter Strips • Conservation Areas • Post-Construction Practices 	DEGRADE water quality: <ul style="list-style-type: none"> • Tillage Practices • Construction Practices • Streambank Erosion • Stormwater Runoff 	<ul style="list-style-type: none"> • <i>Active construction sites (Lack of Erosion and Sediment Control)</i> • <i>Log jams and bank erosion – (Windridge Development)</i>
NUTRIENT (Phosphorus & Nitrogen) impacts: <u>Aquatic Life</u> – <i>promotes algal blooms, reduces dissolved oxygen concentrations</i> <u>Recreational Impact</u> – <i>causes algal blooms, reduces aesthetic appeal, and causes unpleasant odors</i> <u>Drinking Water</u> – <i>increases drinking water treatment costs (taste and odor), resultant algae can clog water intakes and filters</i>	BENEFIT water quality: <ul style="list-style-type: none"> • Riparian Buffers • Filter Strips • Post-Construction Practices 	DEGRADE water quality: <ul style="list-style-type: none"> • Fertilizer Application • Failing Septic Systems 	<ul style="list-style-type: none"> • <i>Commercial fertilizer and pesticide application</i> • <i>Residential fertilizer and pesticide application – Indiana Lake</i> • <i>Waterfowl near detention ponds</i> • <i>Golf courses</i> • <i>CSOs (Fort Ben, 106th St. and Cumberland Rd, Indian Lake)</i> • <i>State Fairgrounds</i>
PATHOGENS (Bacteria & Viruses) impacts: <u>Aquatic Life</u> – <i>exposes aquatic life to disease causing organisms</i> <u>Recreational Impact</u> – <i>exposes recreational users to disease causing organisms</i>	BENEFIT water quality: <ul style="list-style-type: none"> • Sewer Service • Exclusionary Fencing 	DEGRADE water quality: <ul style="list-style-type: none"> • Failing Septic Systems • Combined Sewer Overflows (CSO) • Illicit Connections to 	<ul style="list-style-type: none"> • <i>Failing or inadequate septic systems in rural areas and Marion County Septic Tank Elimination Program Areas.</i> • <i>CSO's</i>

Drinking Water – <i>increases drinking water treatment costs</i>		Storm Sewer <ul style="list-style-type: none">• Wildlife• Stormwater Runoff• Livestock & Manure Management	<ul style="list-style-type: none">• <i>State Fairgrounds</i>
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